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BATHYMETRIC ATLAS OF THE NORTH PACIFIC OCEAN, (U)  
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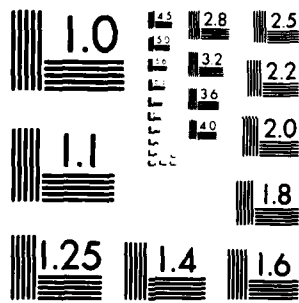
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS 1963-A

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**BATHYMETRIC ATLAS  
OF THE  
NORTH PACIFIC OCEAN**

COMPILED BY  
**SCRIPPS INSTITUTION OF OCEANOGRAPHY**  
UNDER CONTRACT TO  
**U.S. NAVAL OCEANOGRAPHIC OFFICE**

DIR  
ELECT  
JUN 24 1980

**1978**

MERCATOR PROJECTION  
CONTOUR INTERVAL: 200 FATHOMS; 20 FATHOMS WHERE APPLICABLE  
100-FATHOM CONTOUR DASHED  
CONTOURS UNCORRECTED FOR SPEED OF SOUND IN SEAWATER

**NAVAL OCEANOGRAPHIC OFFICE  
NSTL STATION, BAY ST. LOUIS, MS. 39522**

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## FOREWORD

This atlas is designed to fill the needs of naval planners and ocean scientists as well as provide a convenient reference for operational fleet units. It is a reprint under one cover of the charts and supporting material of the previously issued H.O. Pubs 1301-S, 1302-S, and 1303-S. The atlas represents an interpretation of sea-floor relief based on the most accurate sounding data and contour charts available. Many previously uncharted seamounts, other primary structural features, and large physiographic provinces are shown.

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# BATHYMETRIC ATLAS OF THE NORTH PACIFIC OCEAN

## INTRODUCTION

The U.S. Naval Oceanographic Office is indebted to Dr. H. W. Menard and T. E. Chase for the general direction and supervision of the North Pacific bathymetric charting project.

This atlas is designed to fill the need of naval planners and of scientists working in the many fields of ocean science (geology, geophysics, biology, and oceanography) for reliable bathymetric detail in a convenient size for quick reference. The charts in this atlas were previously published as a series of three bathymetric atlases covering the North Pacific Ocean at a scale of approximately 1:4,500,000:

- H.O. Pub. No. 1301-S—Northwestern Pacific (1970)
- 1302-S—Northcentral Pacific (1971)
- 1303-S—Northeastern Pacific (1971).

This series also is published at a scale of approximately 1:2,400,000 as H.O. Pubs. 1301, 1302, and 1303.

➤ This atlas is an interpretation of the sea-floor relief based upon the most accurate sounding data and contour charts available. The contour interval (200 fathoms) was selected to show the greatest detail over most of the area, consistent with the chart scale, quantity of available soundings, and navigational precision. However, these charts are not designed for and should not be used for navigation. In addition to the basic contour interval of 200 fathoms, the 100-fathom contour is shown as a dashed line, and contours at 20-fathom intervals are included in some regions having wide continental shelves and where data are sufficient to show this amount of detail. The contours represent depths uncorrected for variations in the velocity of sound in seawater from the assumed mean velocity of 4800 ft/sec (800 fm/sec).

The scale of the charts is approximately 1:4,500,000 and they are reductions of charts contoured at a scale of about 1:1,000,000. Names of undersea features on the charts conform to recommendations by the U.S. Board of Geographic Names. The outlines of islands and other land areas were taken from Naval Oceanographic Office nautical charts of various scales.

The locations of the individual charts are shown on the index of charts using the numbering system employed by the Naval Oceanographic Office in its Bottom Contour Chart (BC) series in 1970 and 1971.

The charts in this atlas were compiled by the Scripps Institution of Oceanography under contract N62306-69-A-0072-0002 with the U.S. Naval Oceanographic Office. Funds were provided by the Office of Naval Research through the Long Range Acoustic Propagation Program managed by Dr. J.B. Hersey.

## SOURCES OF DATA

The index-of-data charts show the most important sources of data used. The black-bordered areas indicate regions where the bottom topography has been studied in some detail by marine geologists at various oceanographic institutions and agencies. Liberal use was made of their published bathymetric data and interpretations.

The original echograms and adjusted navigational plots of numerous expeditions conducted by Scripps Institution of Oceanography were a major source of data for many of the bathymetric charts.

The U.S. Naval Oceanographic Office supplied plots of sounding lines for each chart and microfilm copies of original analog records and navigational tracks. Detailed Marine Geophysical Surveys in the northern Philippine Sea and data from extensive surveys in the Sea of Japan also were provided by the Naval Oceanographic Office.

Special charts prepared by the Naval Oceanographic Office for the PARKA (Pacific Acoustic Research Kanoche—Alaska) experiments, as well as bathymetric data collected during the experiment, were used.

The Pacific Oceanographic Laboratory of the Environmental Sciences Service Administration provided U.S. Coast and Geodetic Survey data from Operation SEAMAP in addition to numerous other survey and transit tracks throughout the region.

Nautical charts published by the Naval Oceanographic Office and the U.S. Coast and Geodetic Survey provided nearshore details around islands and reefs. Nautical and bathymetric charts published by the hydrographic agencies of the United Kingdom, Japan, Netherlands, and the Soviet Union provided nearshore soundings and some detail in areas where available data were sparse. Some of the principal published sources of information that were consulted are listed below.

P-1

Echo sounding equipment used to gather data for the charts included the Ede Corporation Sonar Sounding Set AN/UQN-1B; Westrex Corporation Mark V, X, and XV Precision Depth Recorders (PDR); Thomas Giff Company Depth Recorder (GDR); Alden Electronic and Impulse Recording Equipment Company, Inc., Precision Graphic Recorder (PGR); Alpine Geophysical Associates, Inc., Precision Echo Sounder Recorder (PESR); and Kelvin-Hughes Echo Sounder.

## EVALUATION OF DATA

All available data were evaluated for navigational precision and depth reliability. When original echograms, or copies, could be examined, record quality and sufficiency of annotation were also included in the evaluation. From this evaluation high-quality tracks were selected to form the framework or control to which the track data of poorer quality and random soundings were referenced. Only when the original data were available for examination, and proved to be of the highest quality, were they digitized for the computer data bank.

Some data in contoured chart form, in the areas indicated on the index-of-data charts, were adapted to the scale and contour interval of new charts. Conversions to uncorrected fathoms were made, when applicable, utilizing Matthews' Tables. The charts were compiled by standard cartographic techniques using the Naval Oceanographic Office H.O. 3000 series mylar plotting sheets as base charts. Stable base materials were used throughout the compilation. Coastline configurations were taken from Naval Oceanographic Office nautical charts of various scales. All data evaluation, selection, contouring, and editing were done by marine geologists. Final drafting, data preparation, and data digitizing were accomplished by geological and computer technicians.

Generally accepted structural and tectonic theories were applied in delineating bathymetric features and in extrapolating where sounding data were insufficient for detailed portrayal.

The charts are marked "do not use for navigation" because the dangers to navigation are not completely annotated.

In addition to the small-scale track charts on pages ix, x, xi, tracks are shown as a subdued gray overprint on each contour chart. The sounding lines used in contouring are classified as "primary" or "secondary" data sources. (This distinction is not made on charts to the west of 160°E.) The sounding lines

that provided the most precisely located and accurately measured water depths are classified as primary data. Secondary data represent random tracks with poorer quality, less reliable records, and less precise navigational positioning. Dashed sections of the tracks indicate reduced reliability in data quality. A third category of depth data was used in areas lacking adequate sounding lines. This category includes soundings from nautical charts, both domestic and foreign, and interpolation from published contour charts. Not all of the tracks are shown in some of the black-bordered regions indicated on the index-of-data charts.

## CONCLUSIONS

These charts show many previously uncharted seamounts, trends of other primary structural features such as trenches and ridges, and the approximate limits of some large physiographic provinces.

The charts presented here do not represent the final definitive configuration of the sea floor. Many precise and detailed surveys will be needed throughout the world's oceans to give such complete coverage. However, the scale and contour interval used are sufficient to give as complete a sea-floor portrayal as is commensurate with the available data and current knowledge of submarine geologic structures and processes.

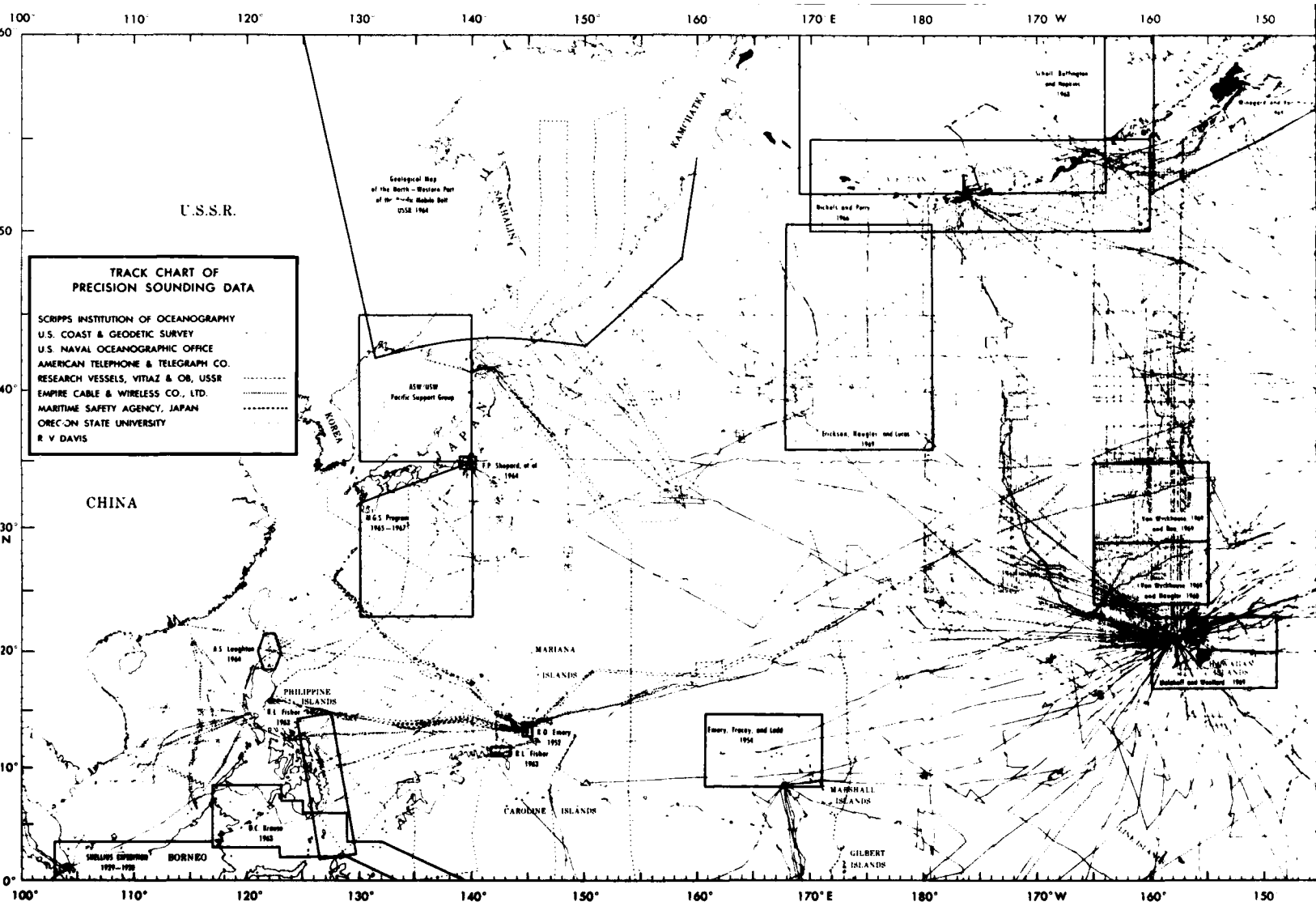
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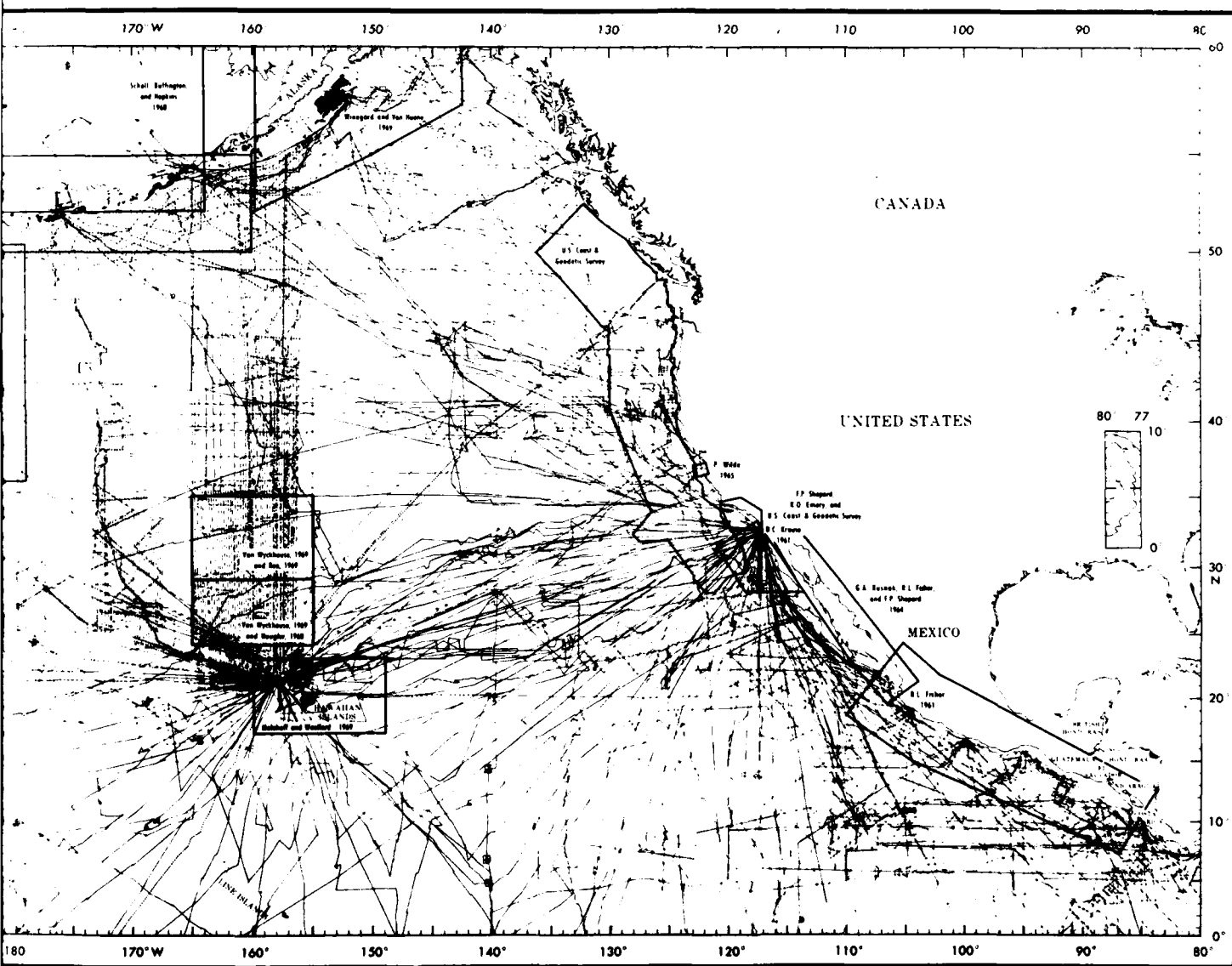
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INDEX of DATA

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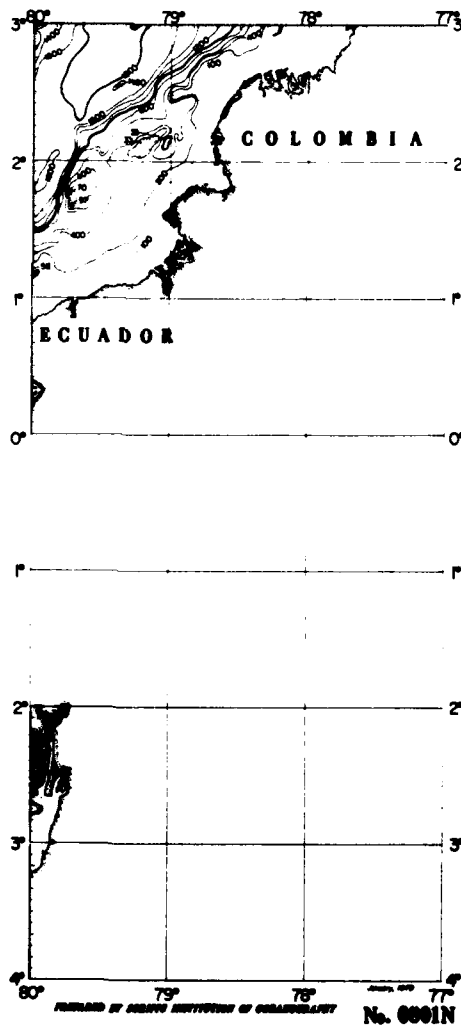
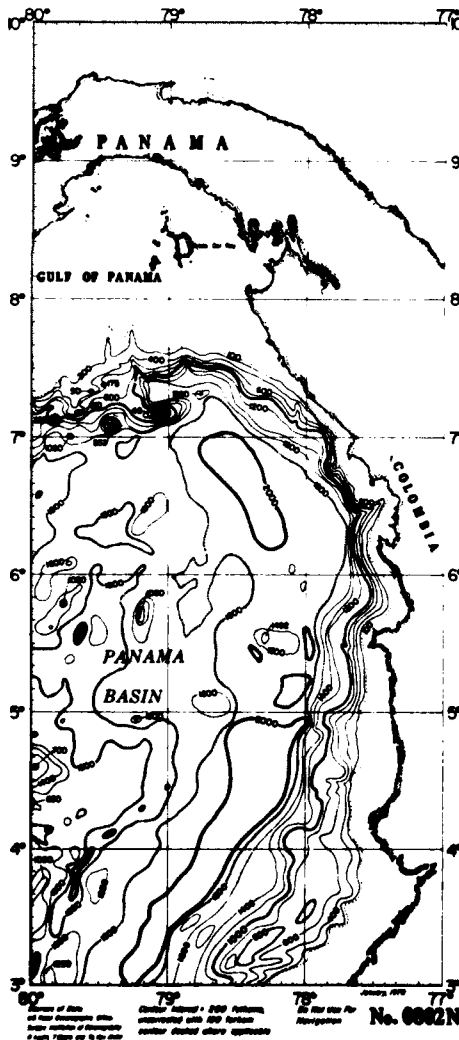
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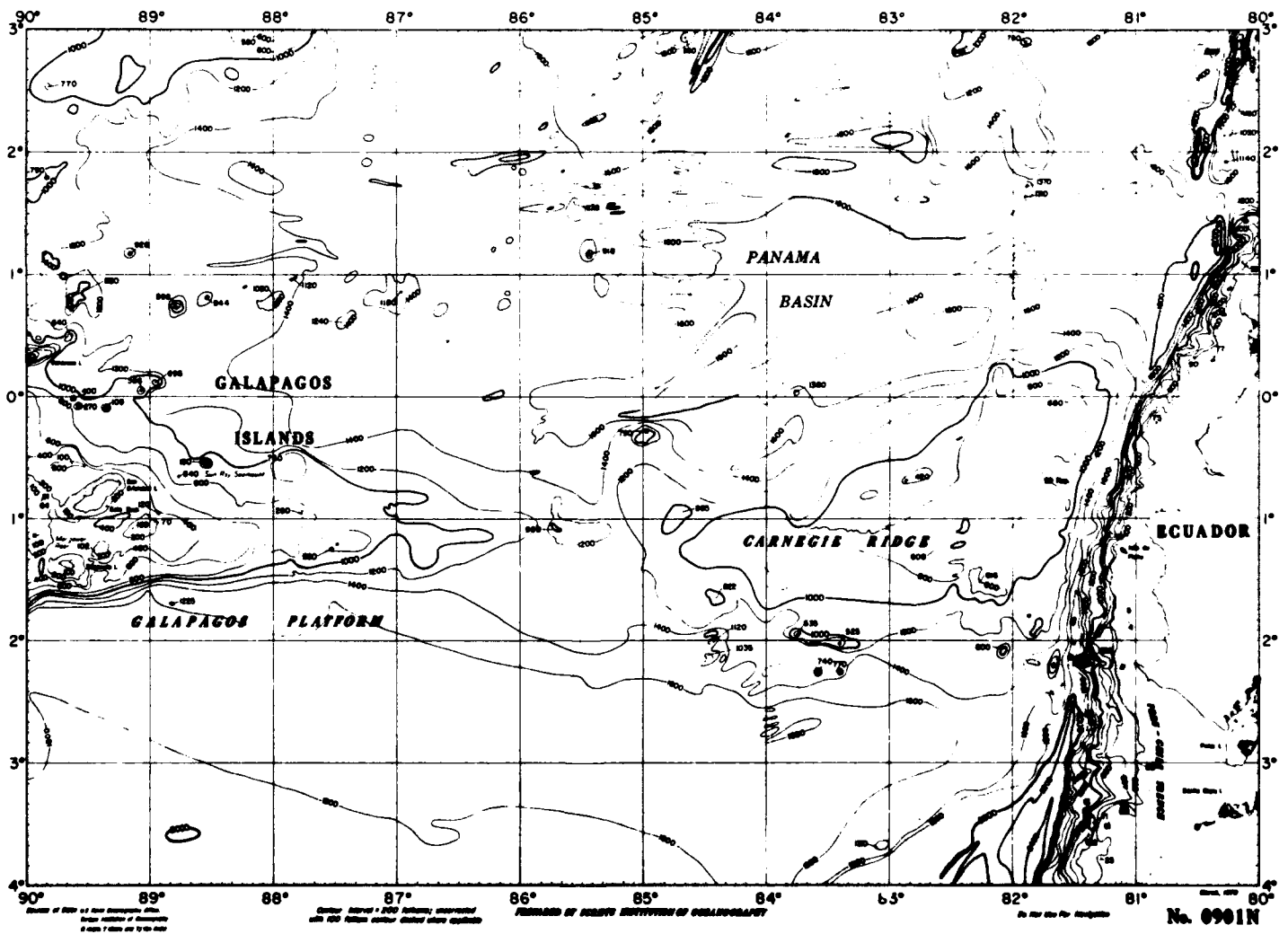
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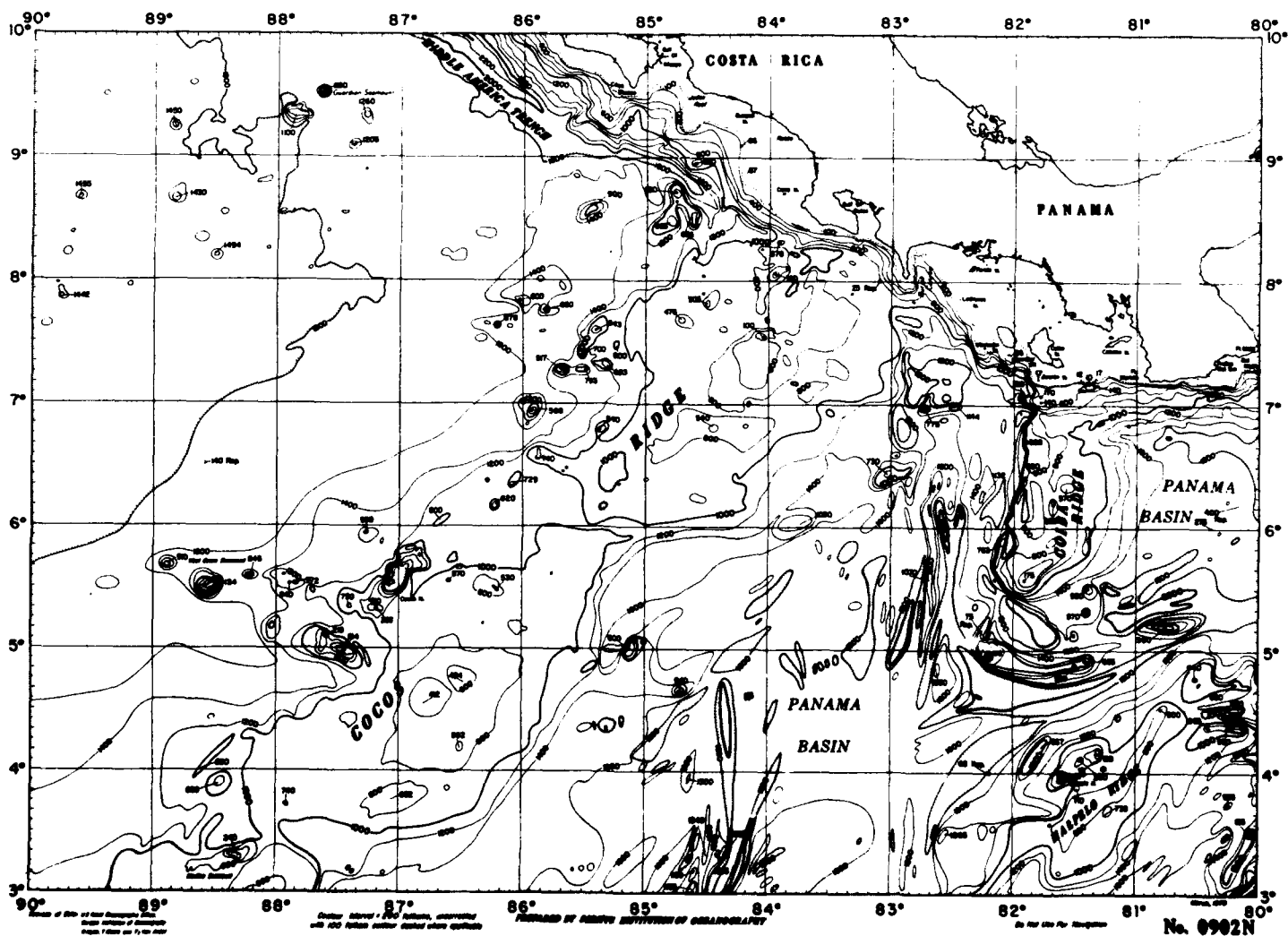
The map displays a coordinate grid for the Pacific Ocean. The vertical axis (latitude) ranges from 1913N to 0801N, with major labels every 100 units (1913N, 1813N, 1712N, 1612N, 1512N, 1412N, 1310N, 1206N, 1105N, 1003N, 0902N, 0801N). The horizontal axis (longitude) ranges from 180°E to 80°W, with major labels every 10 degrees (180°, 170°W, 160°, 150°, 140°, 130°, 120°, 110°, 100°, 90°, 80°). The grid cells are labeled with their respective coordinates. The map includes outlines of the Americas and the Pacific islands.

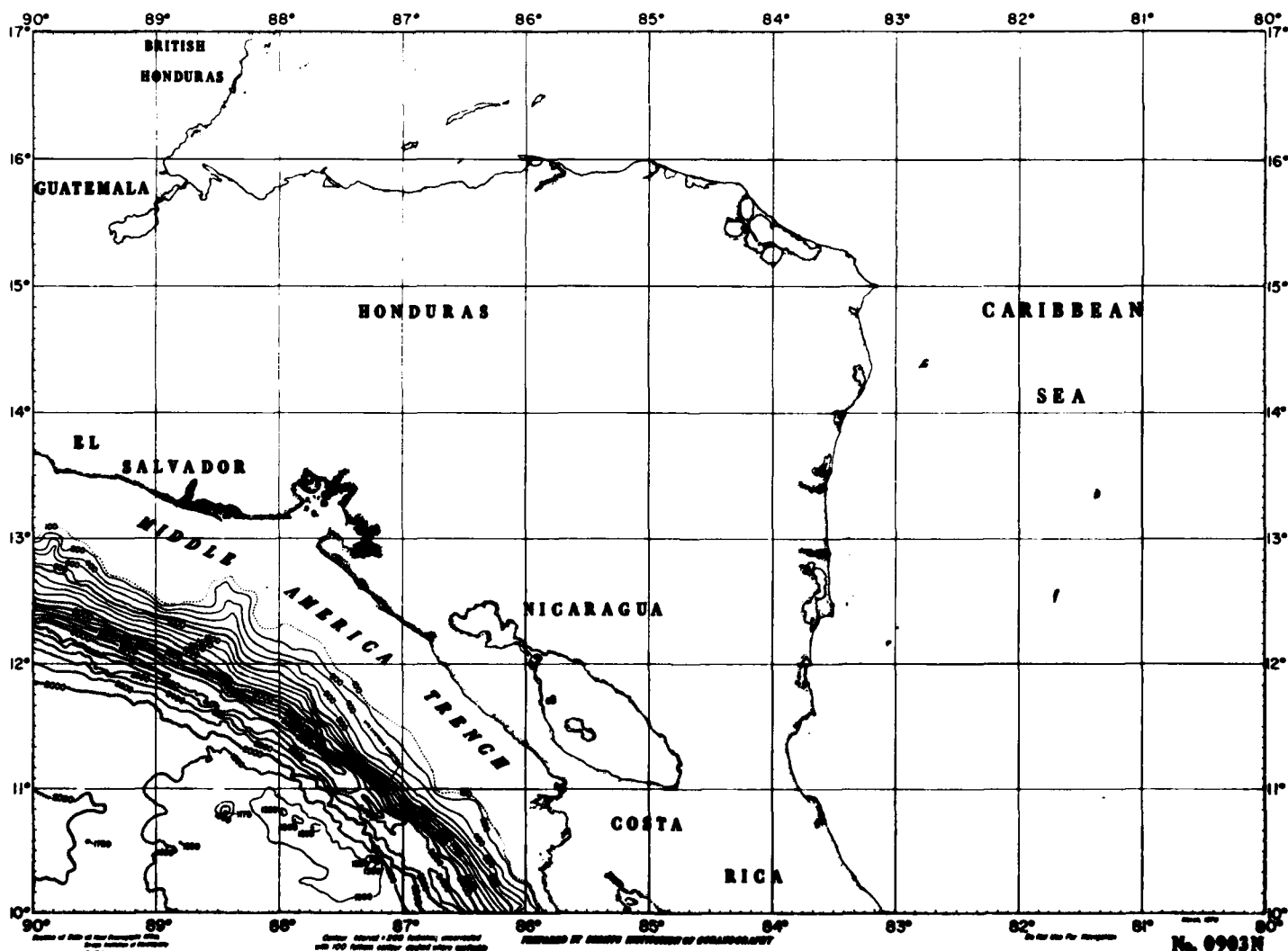
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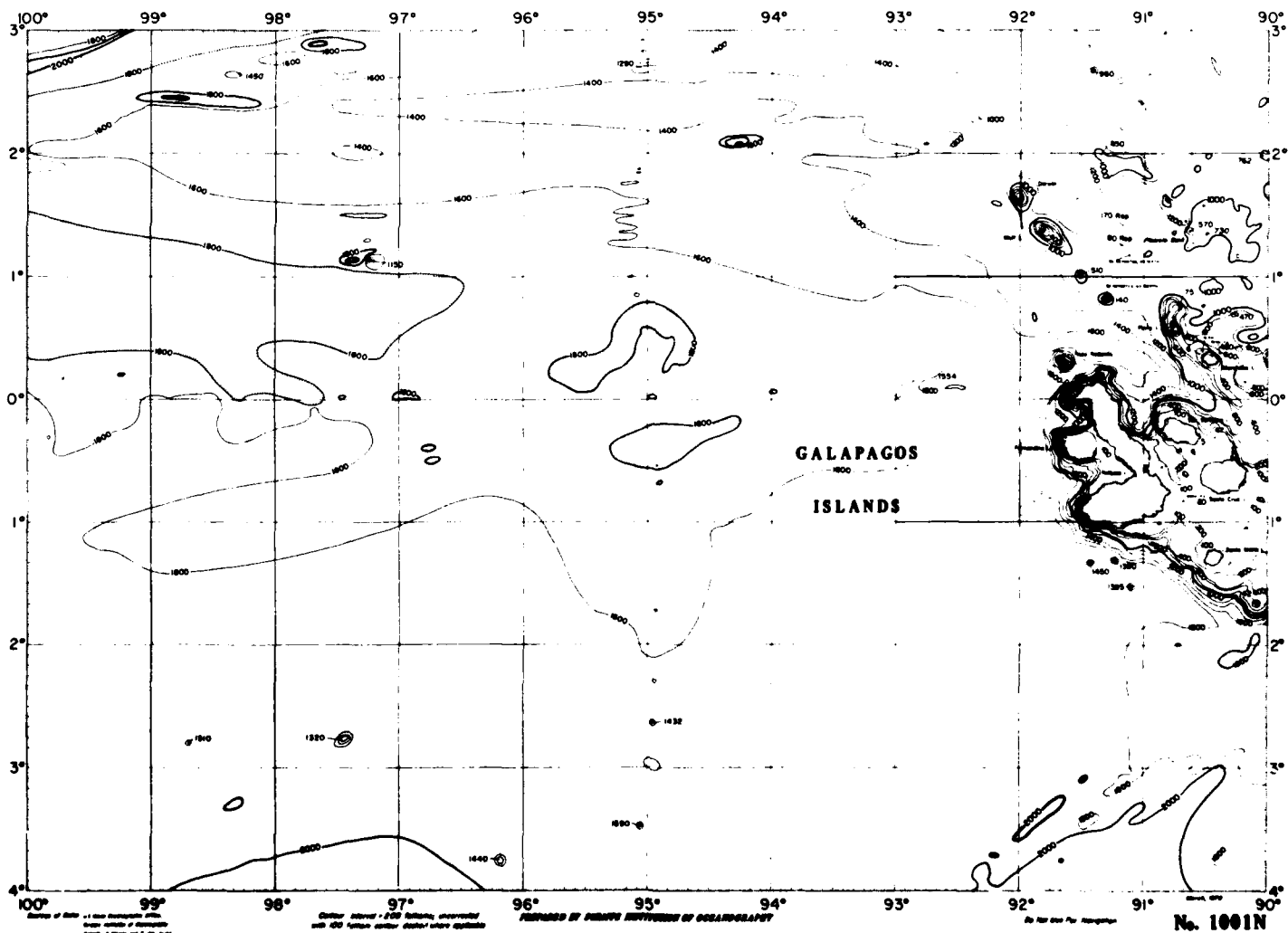
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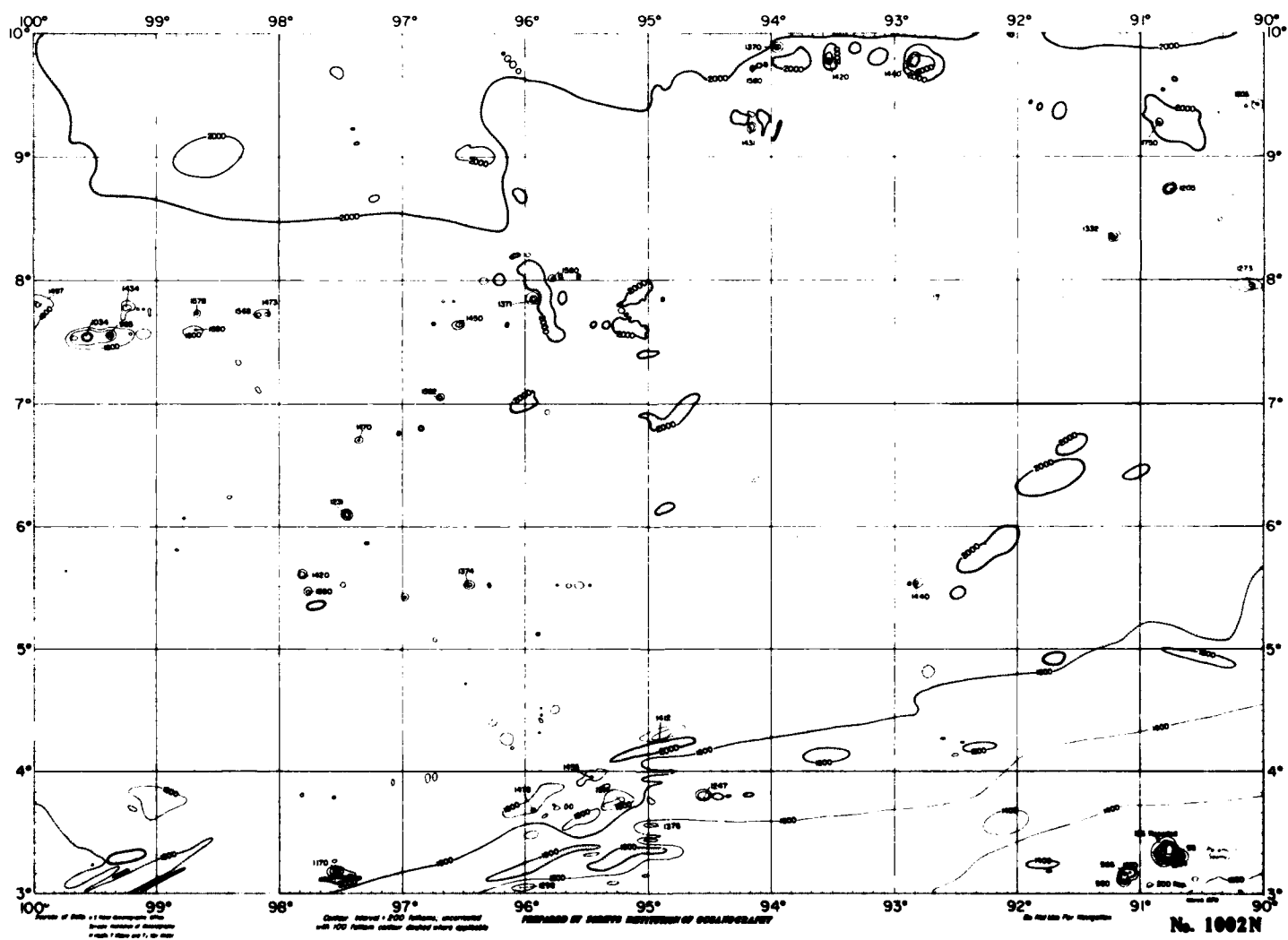


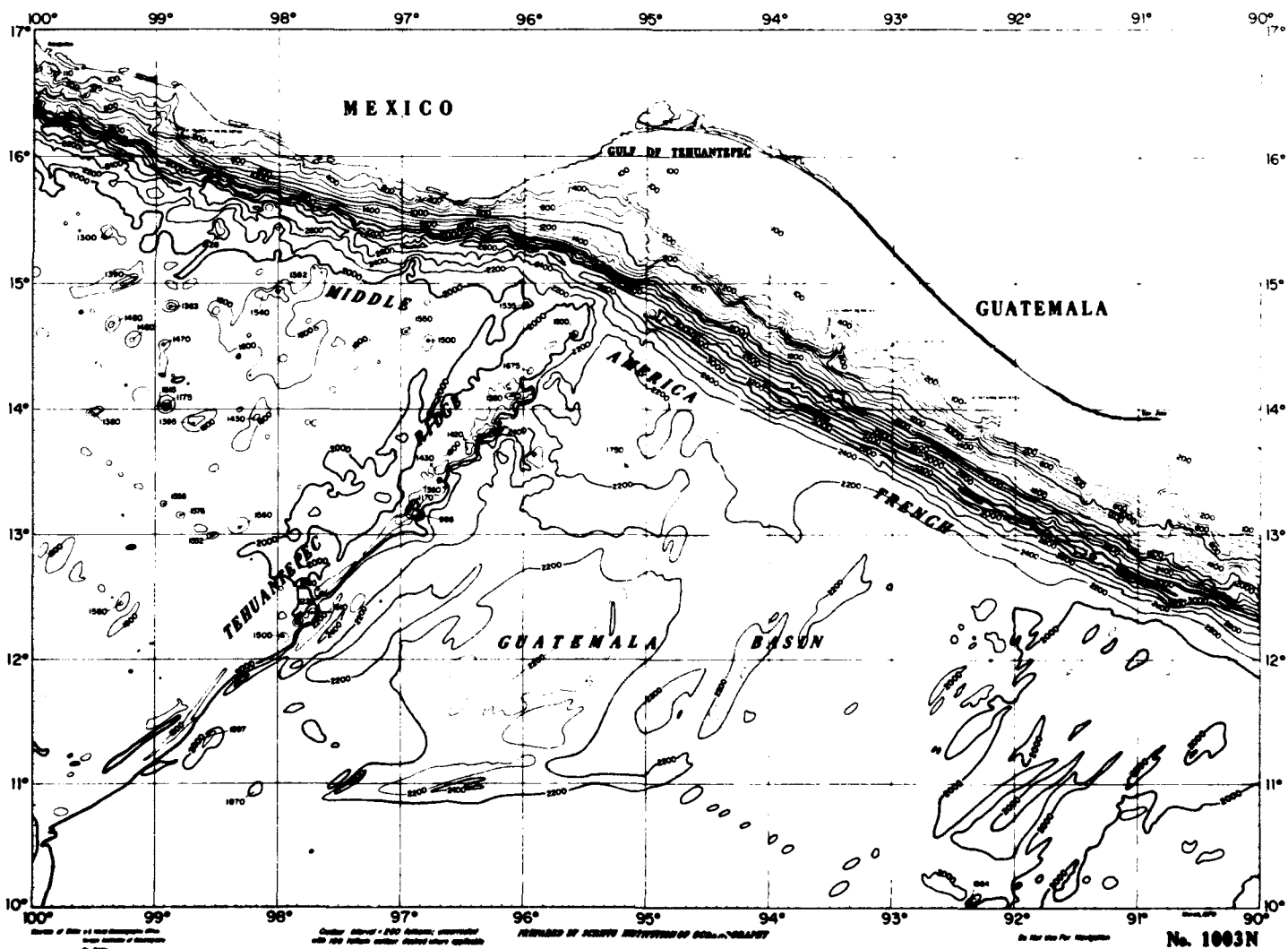


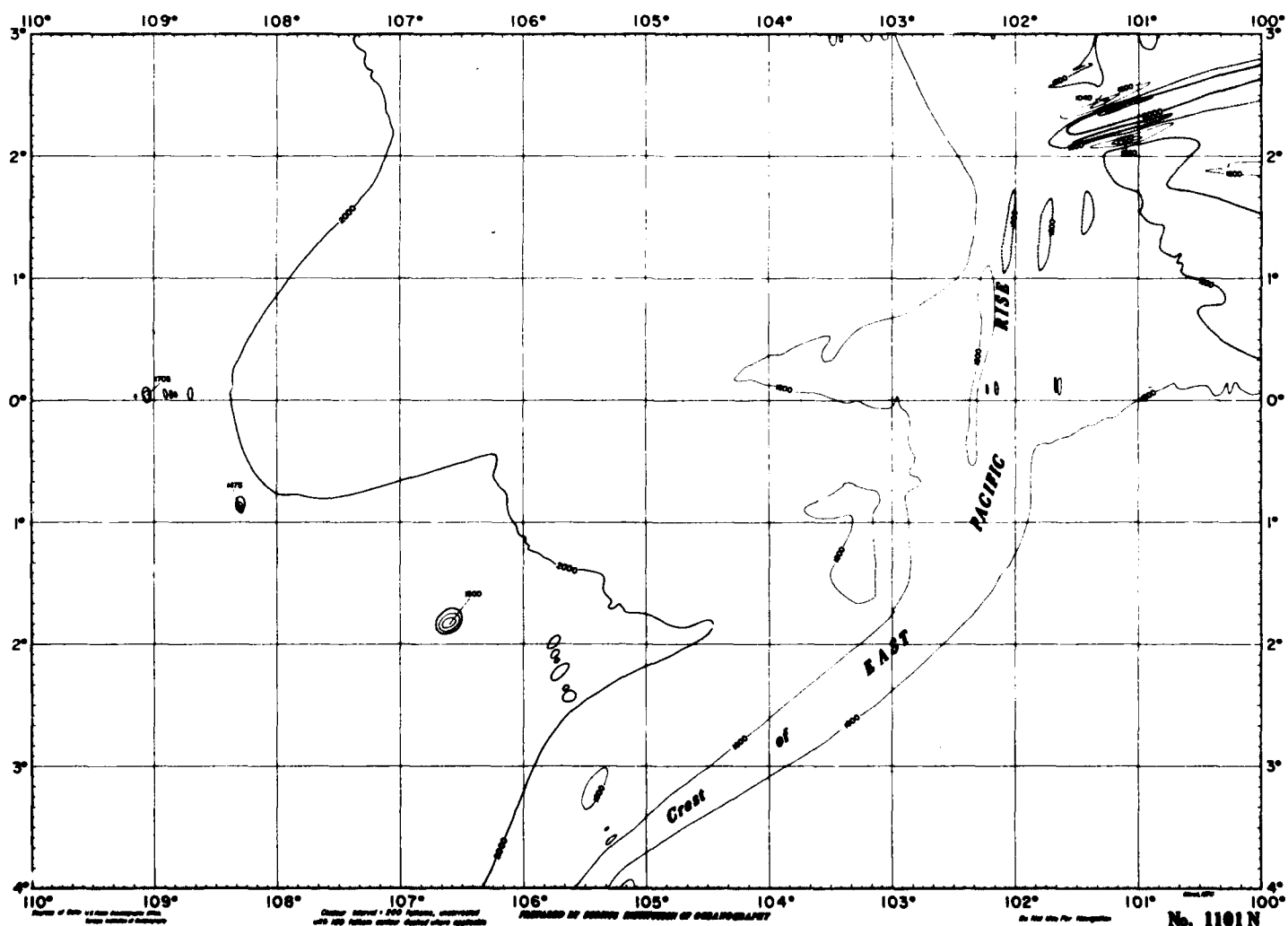


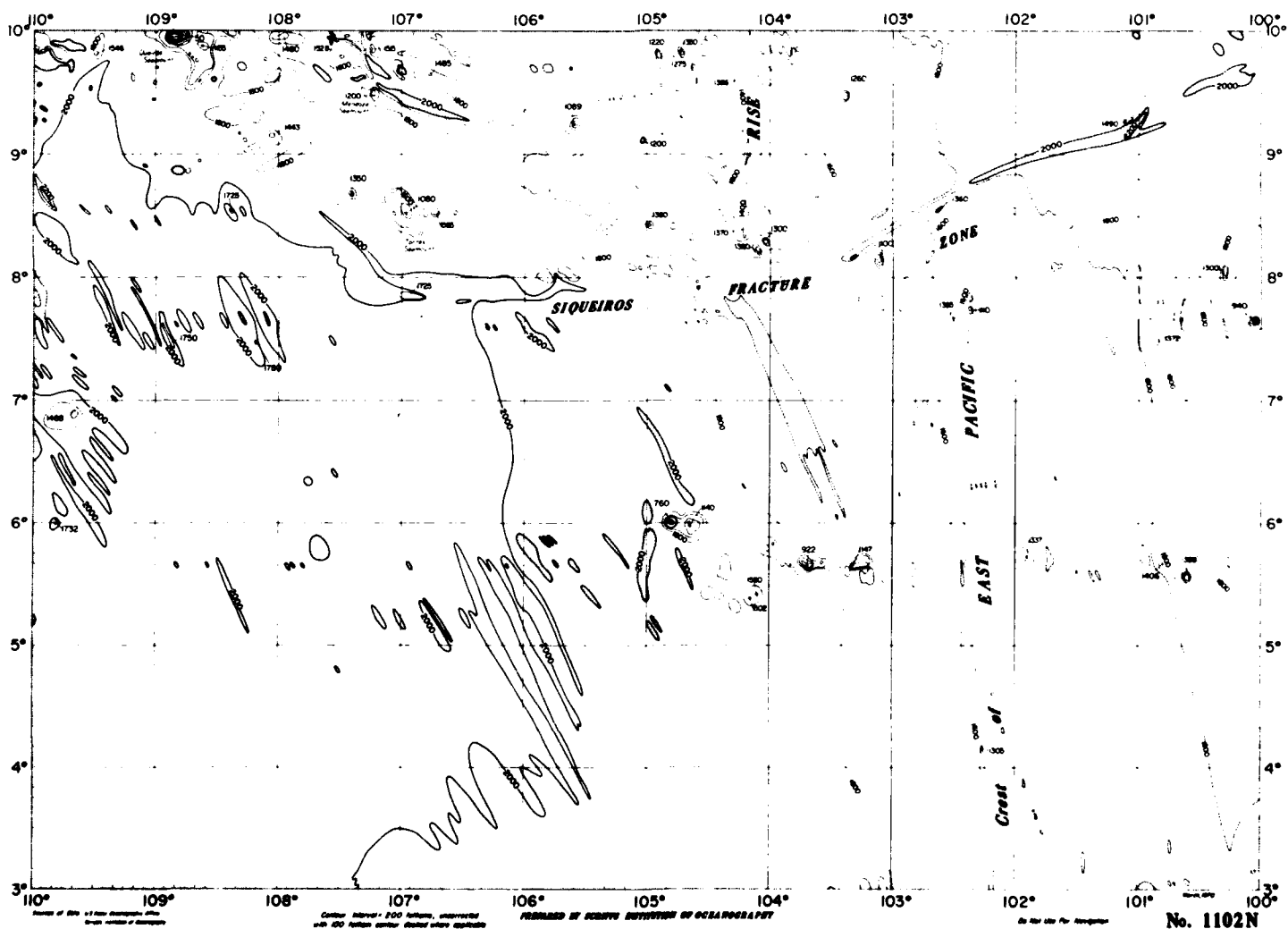


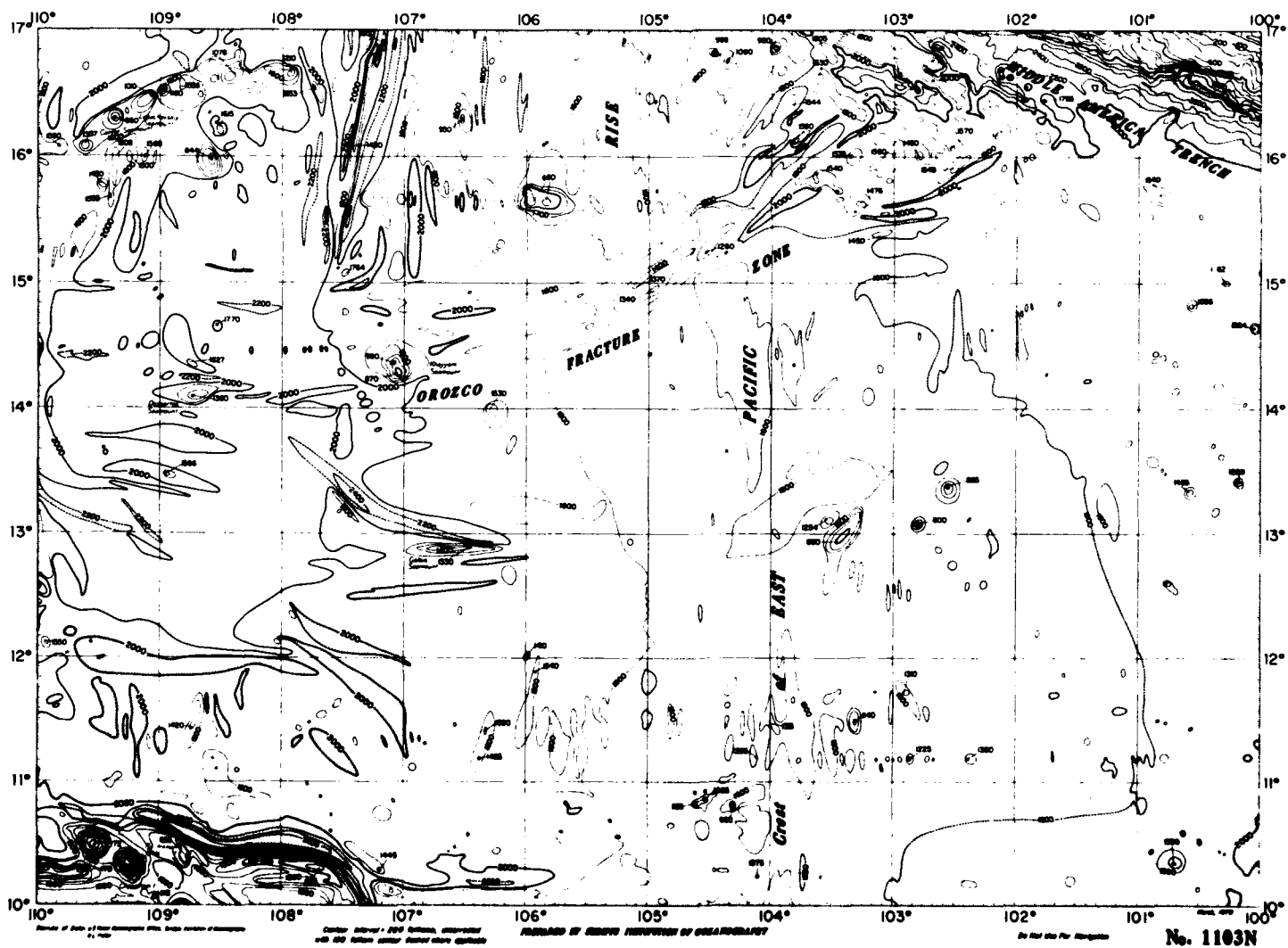


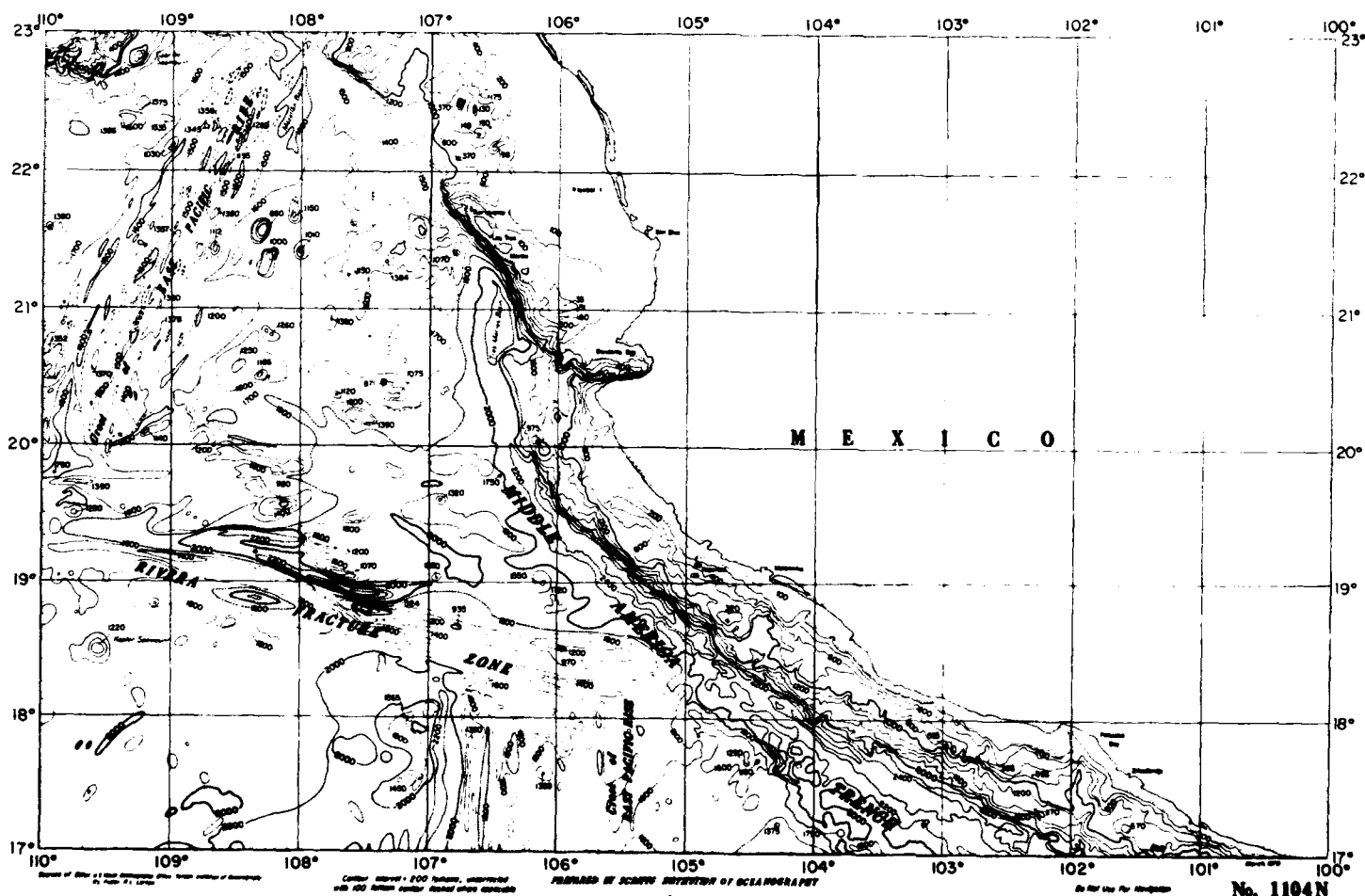




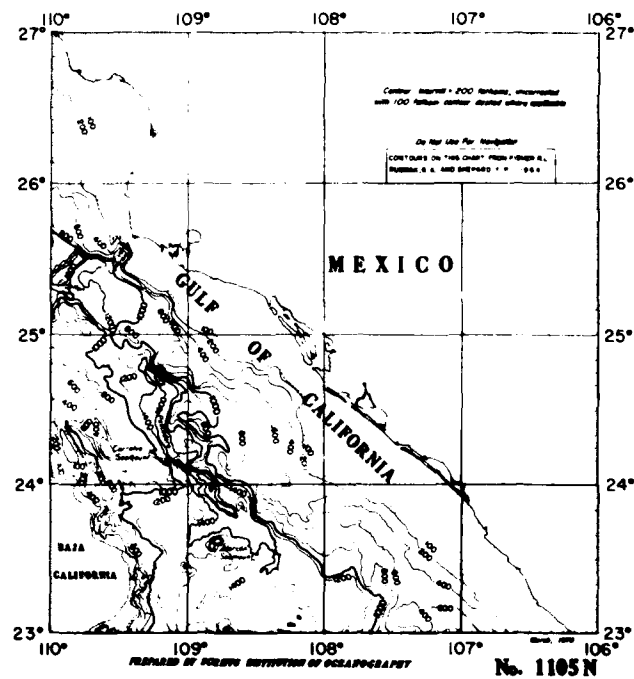


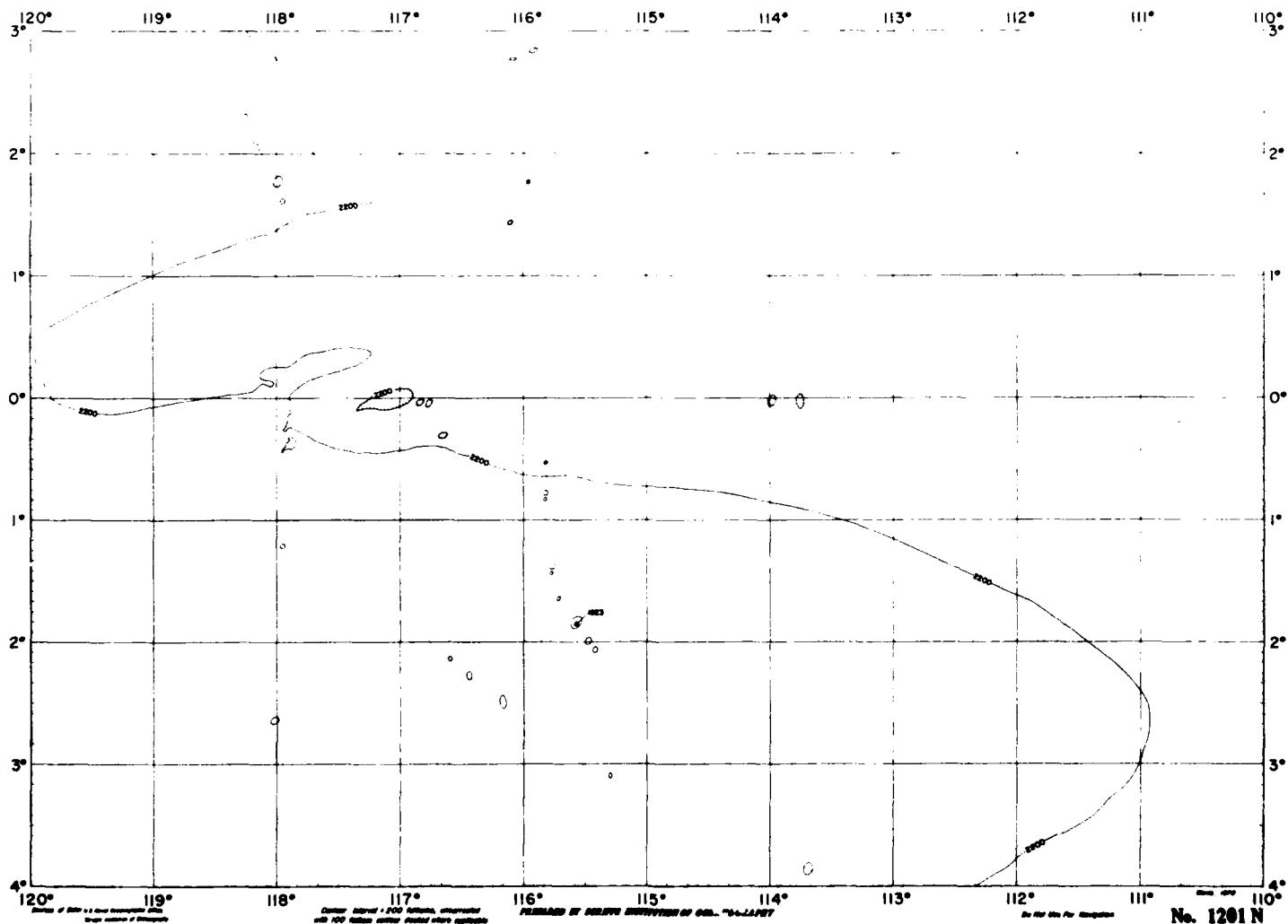


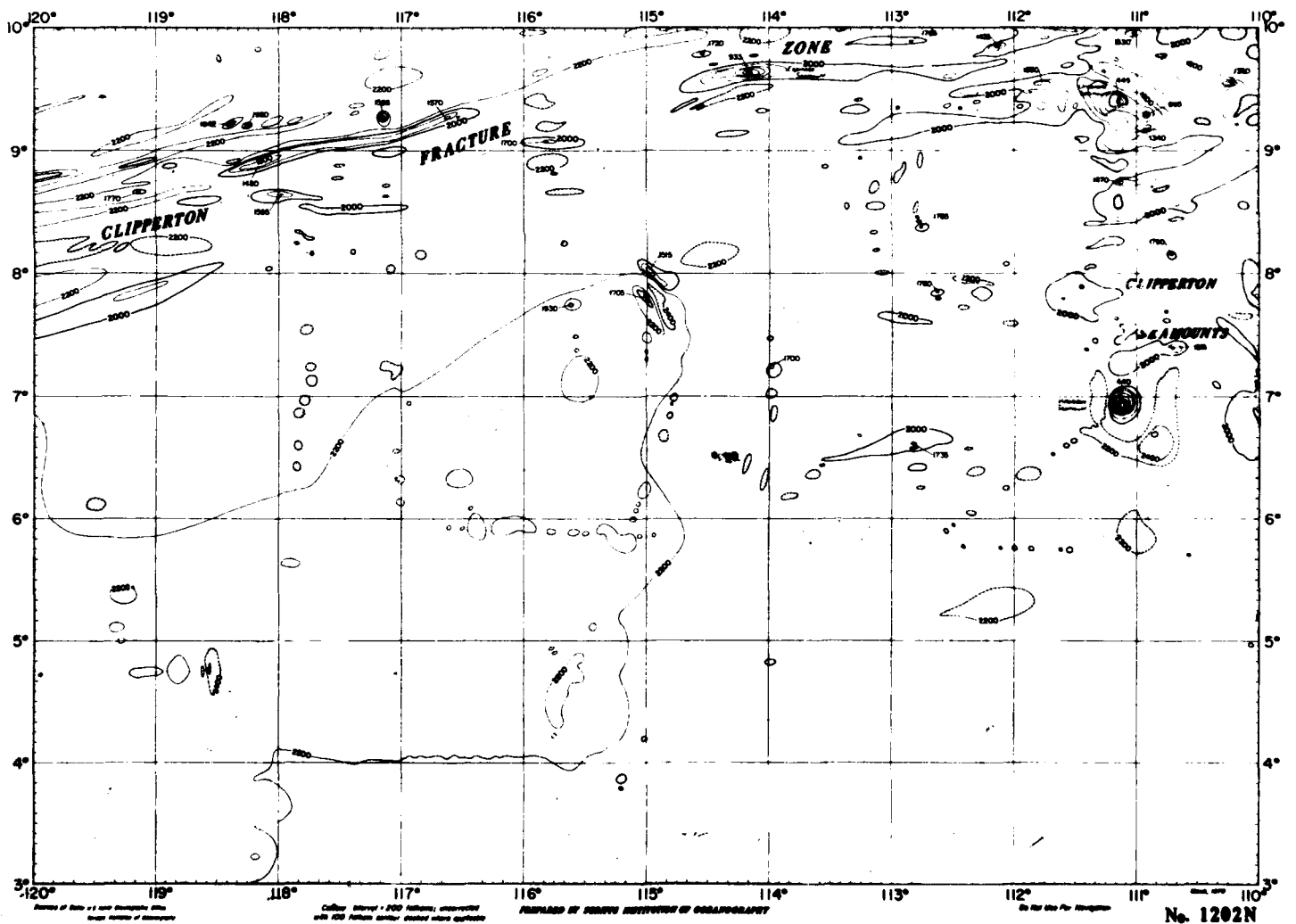


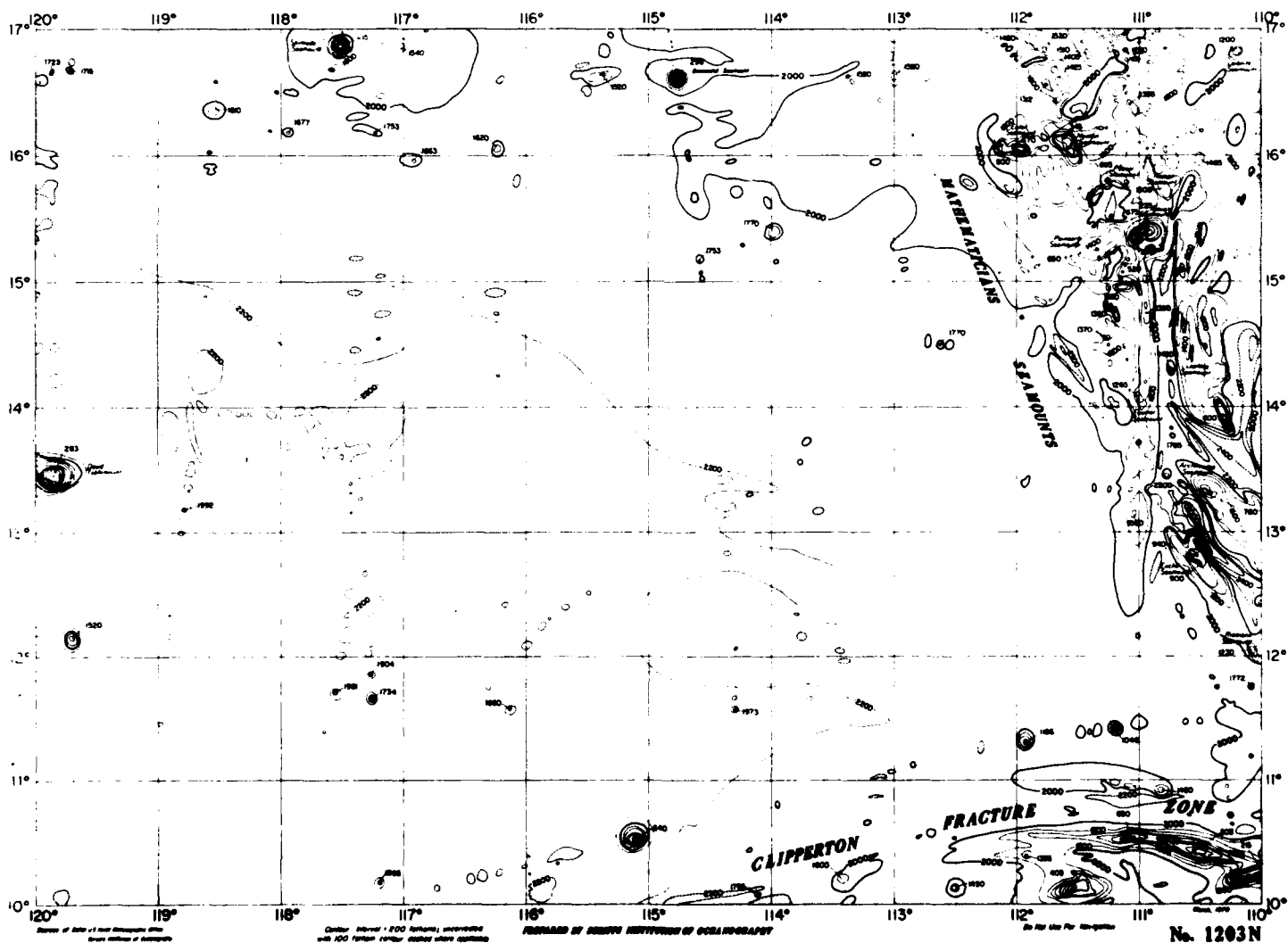


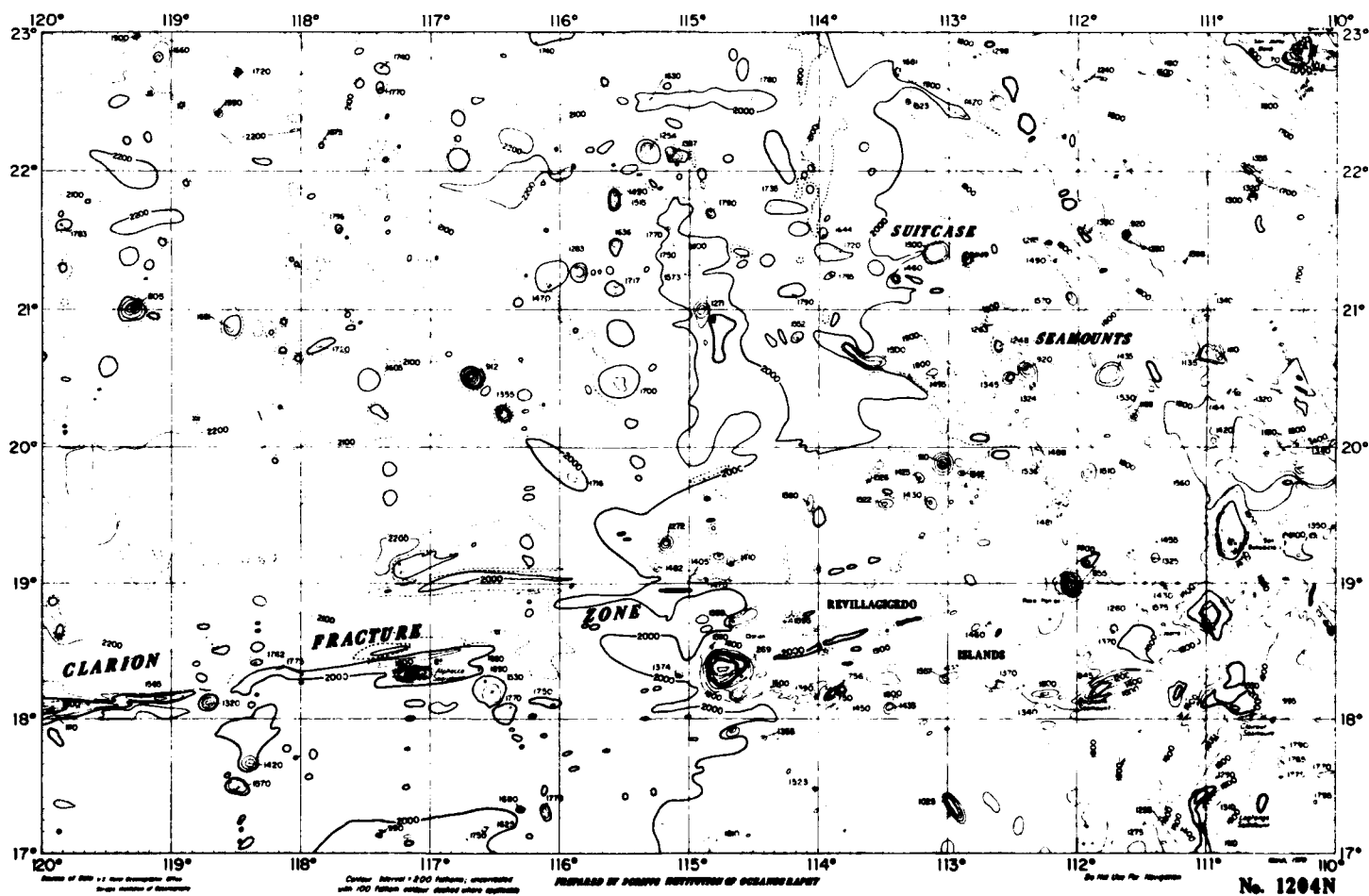
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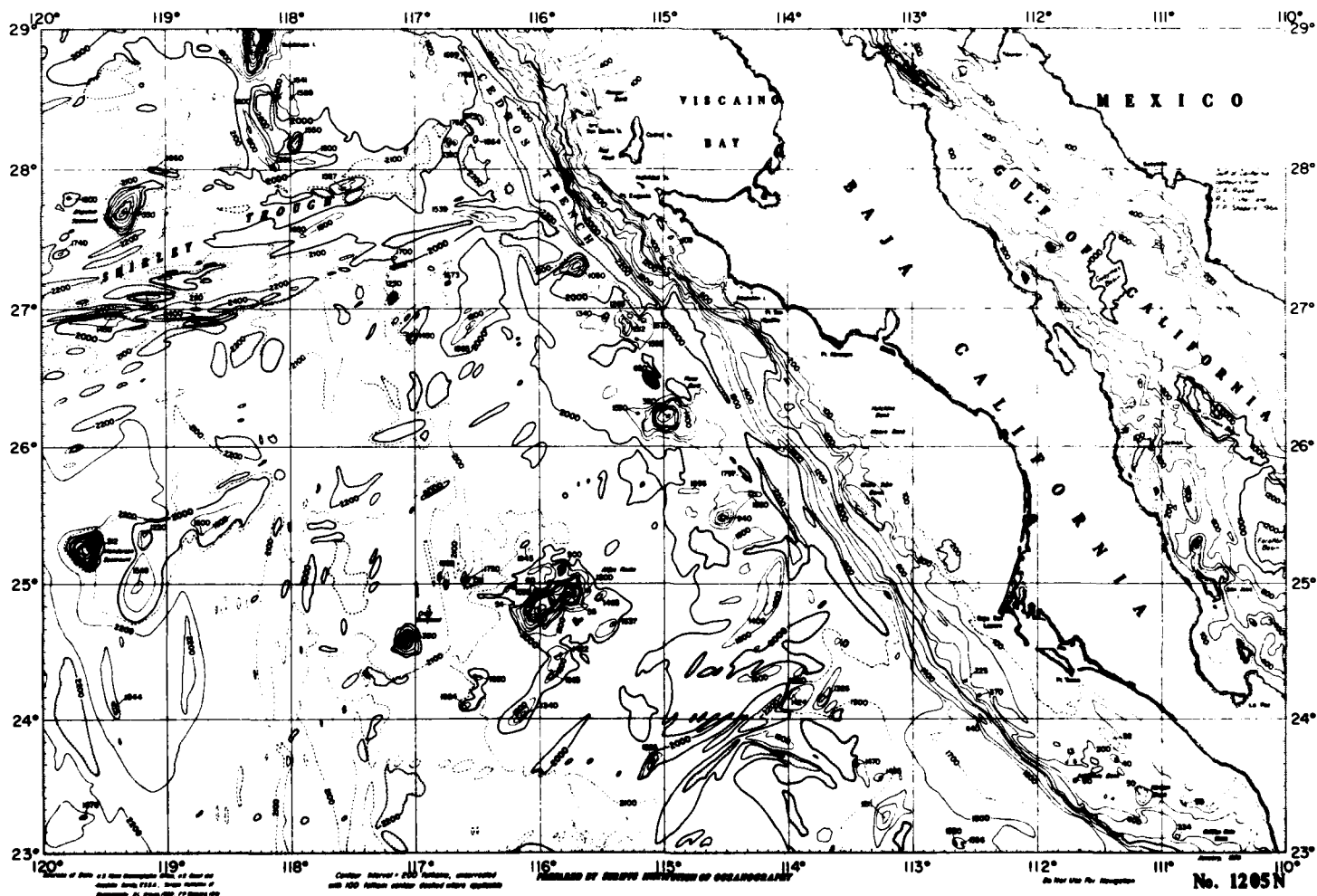


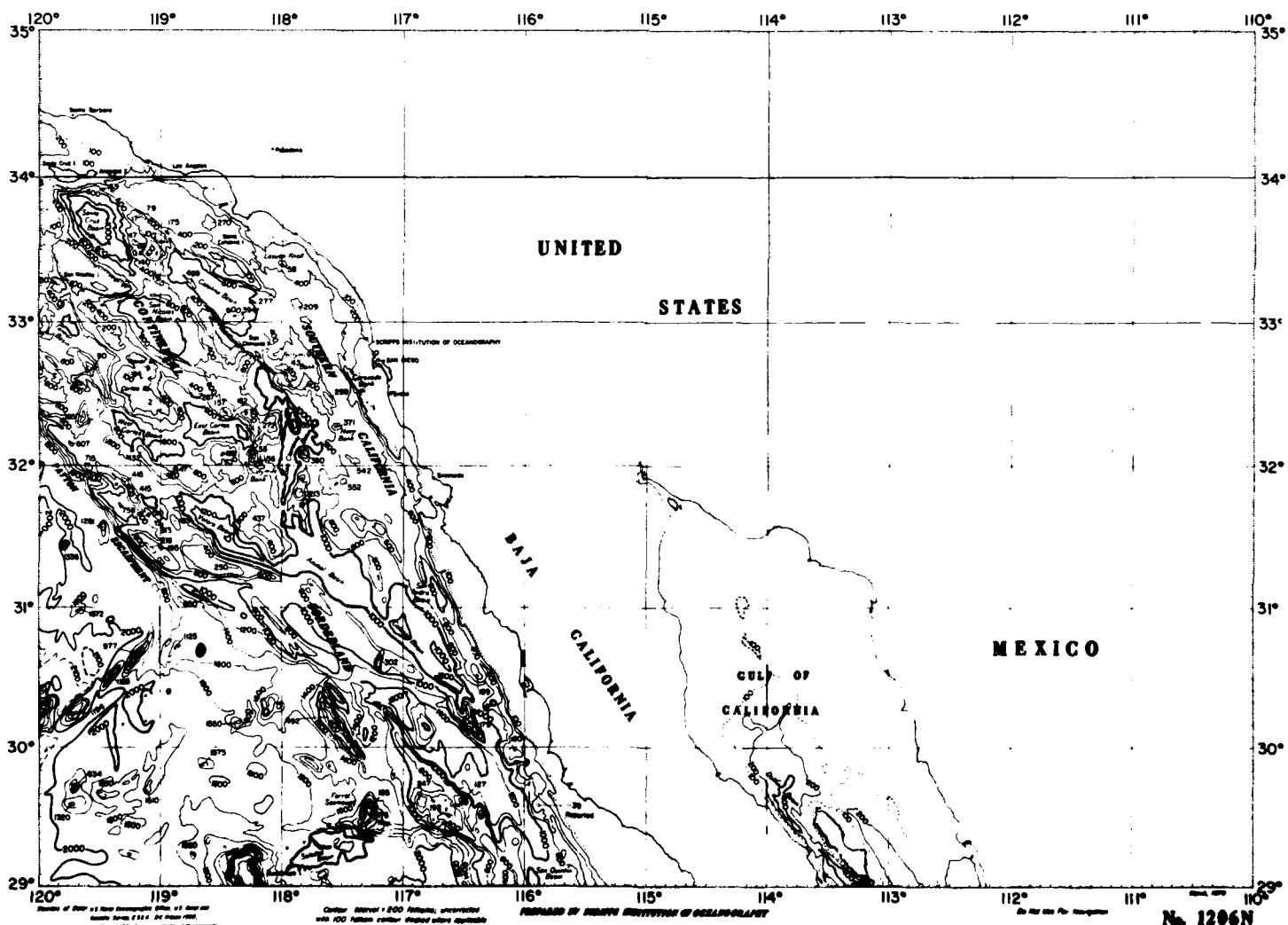


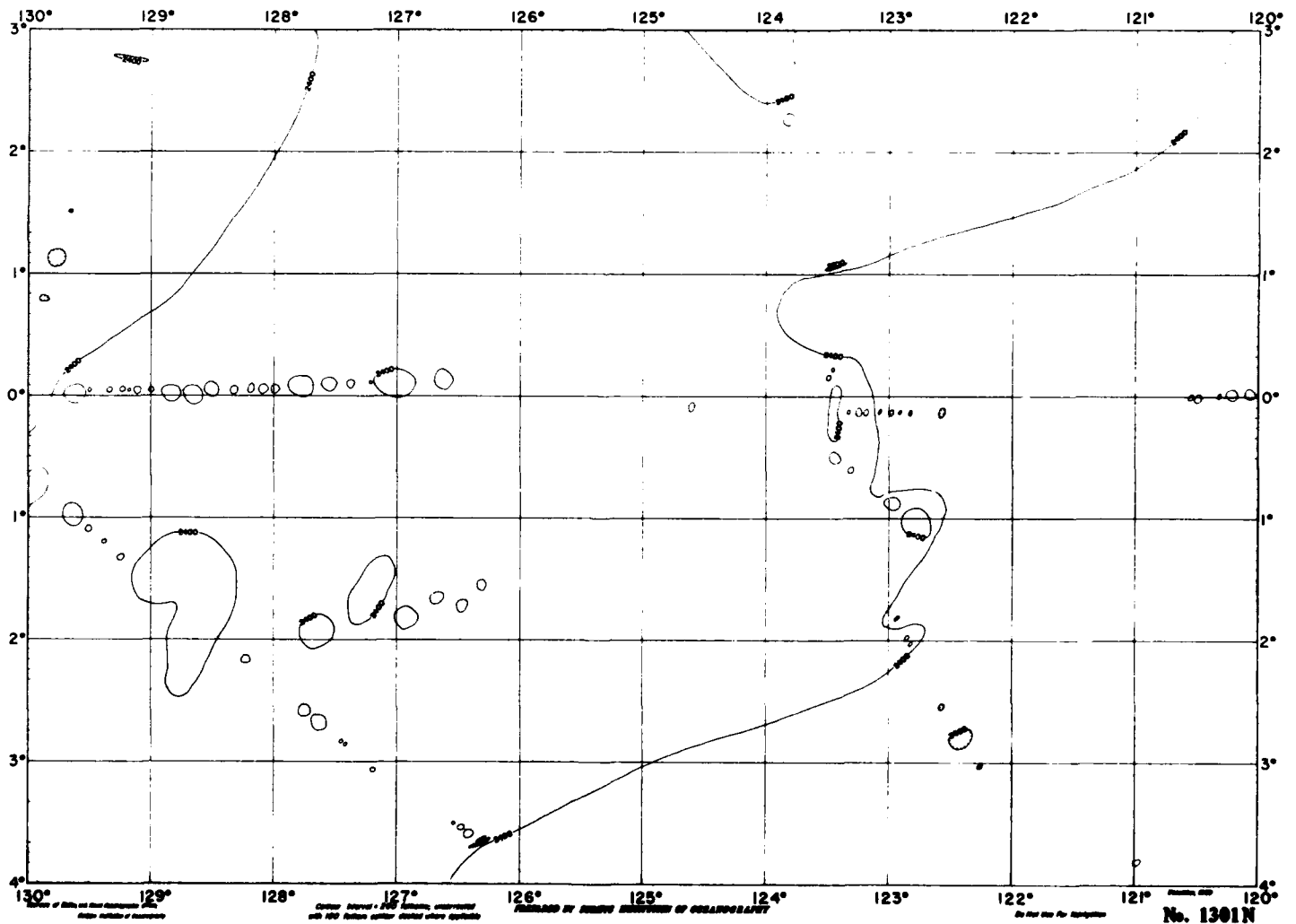


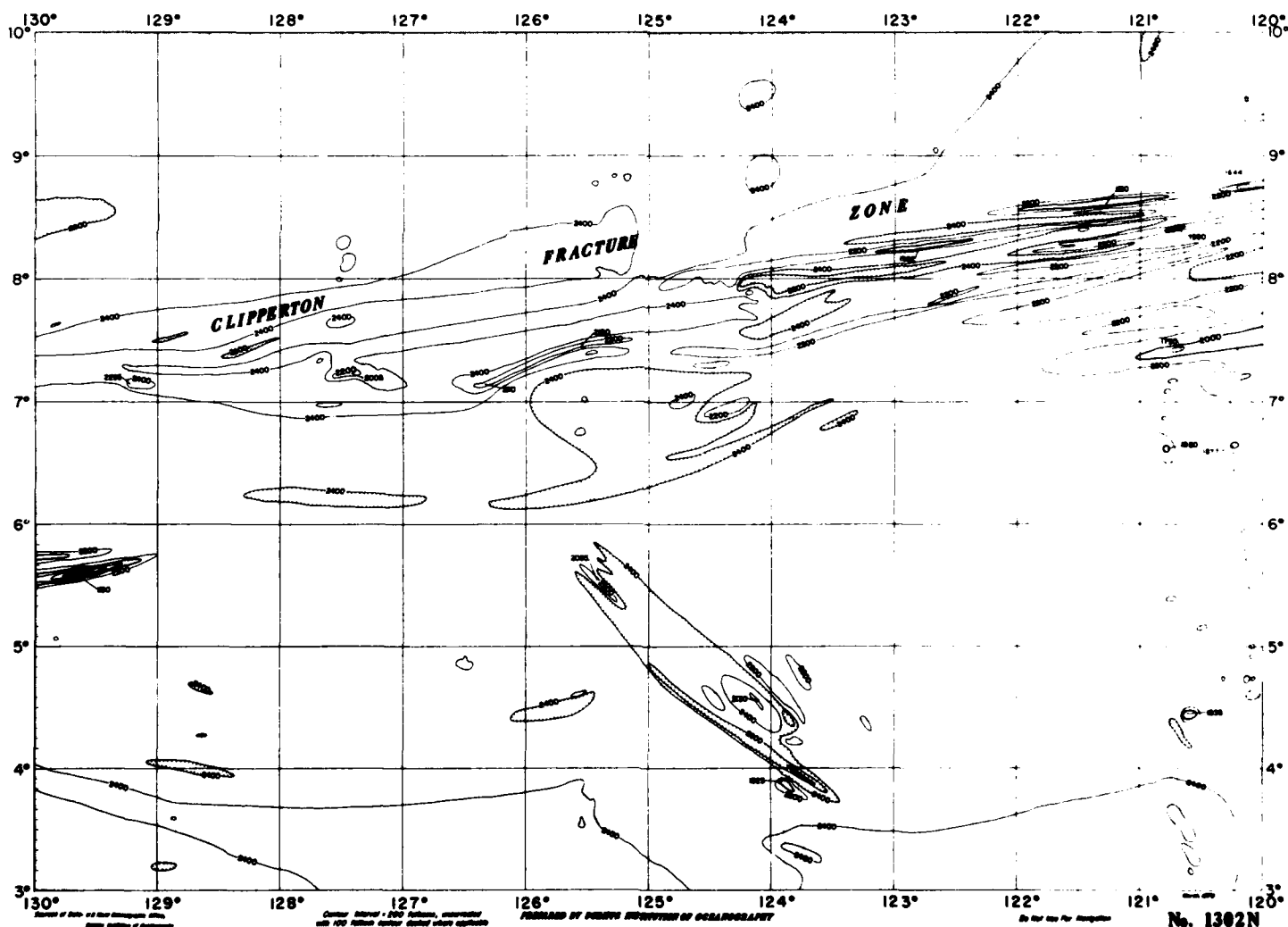


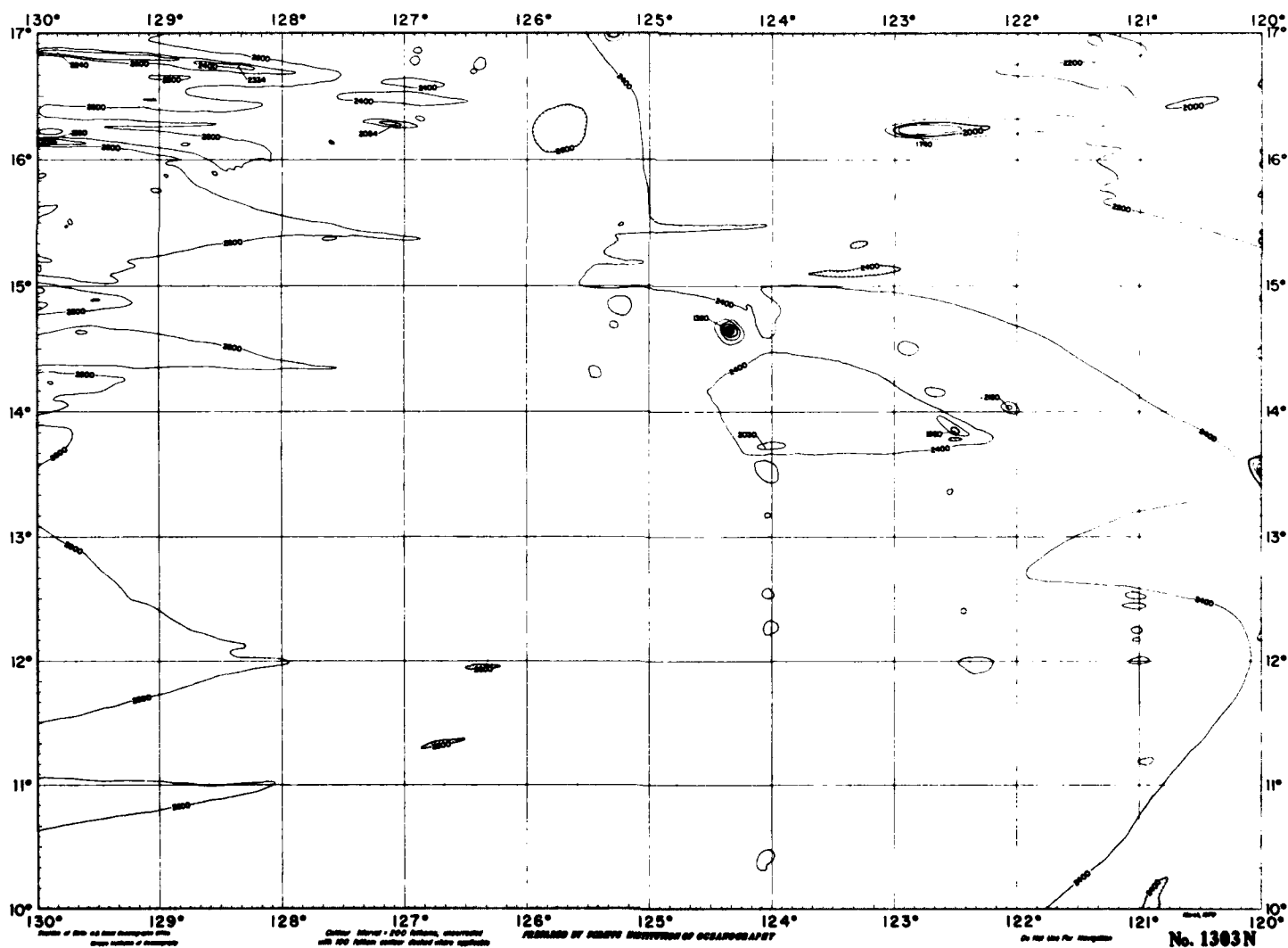


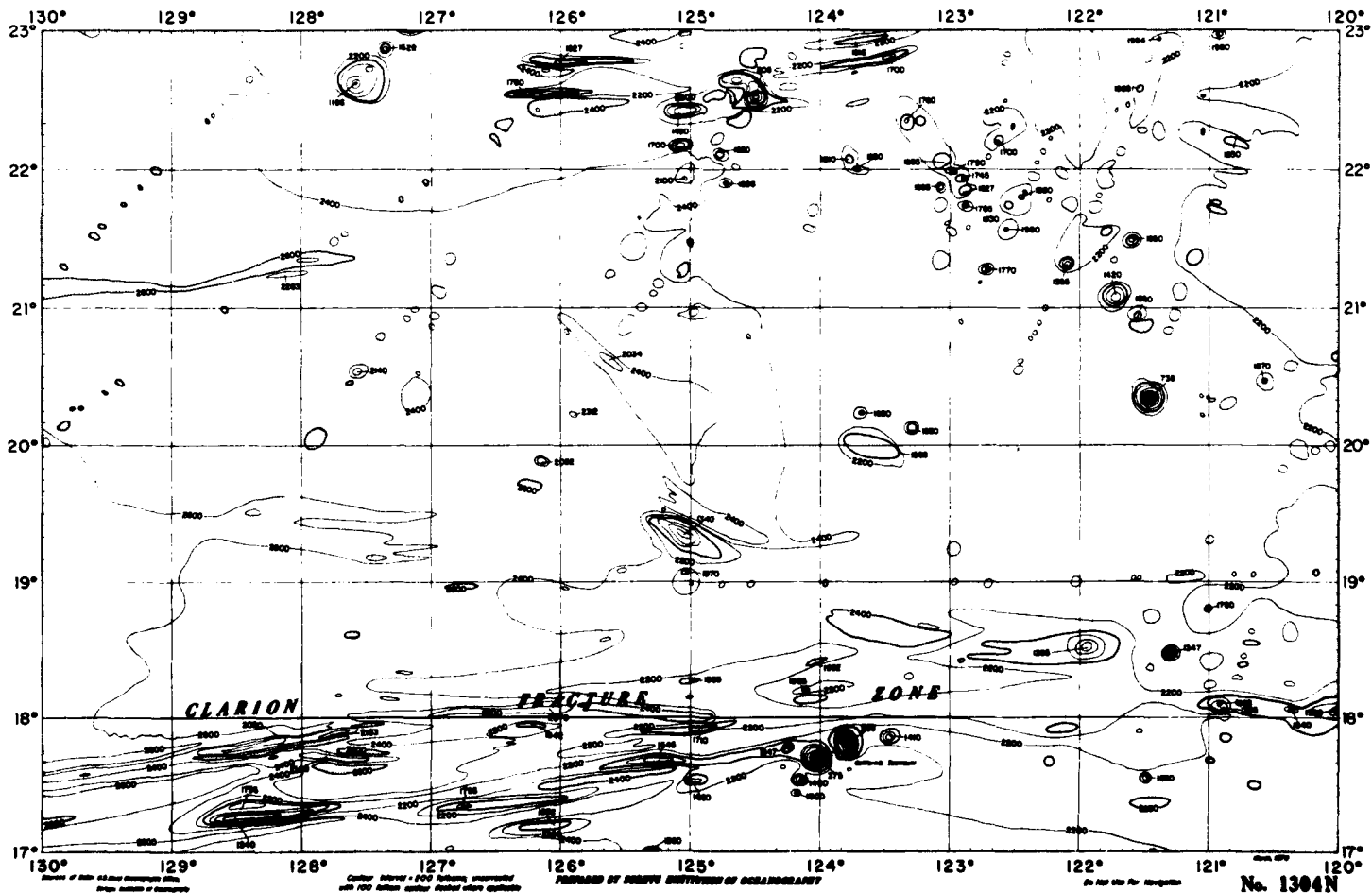


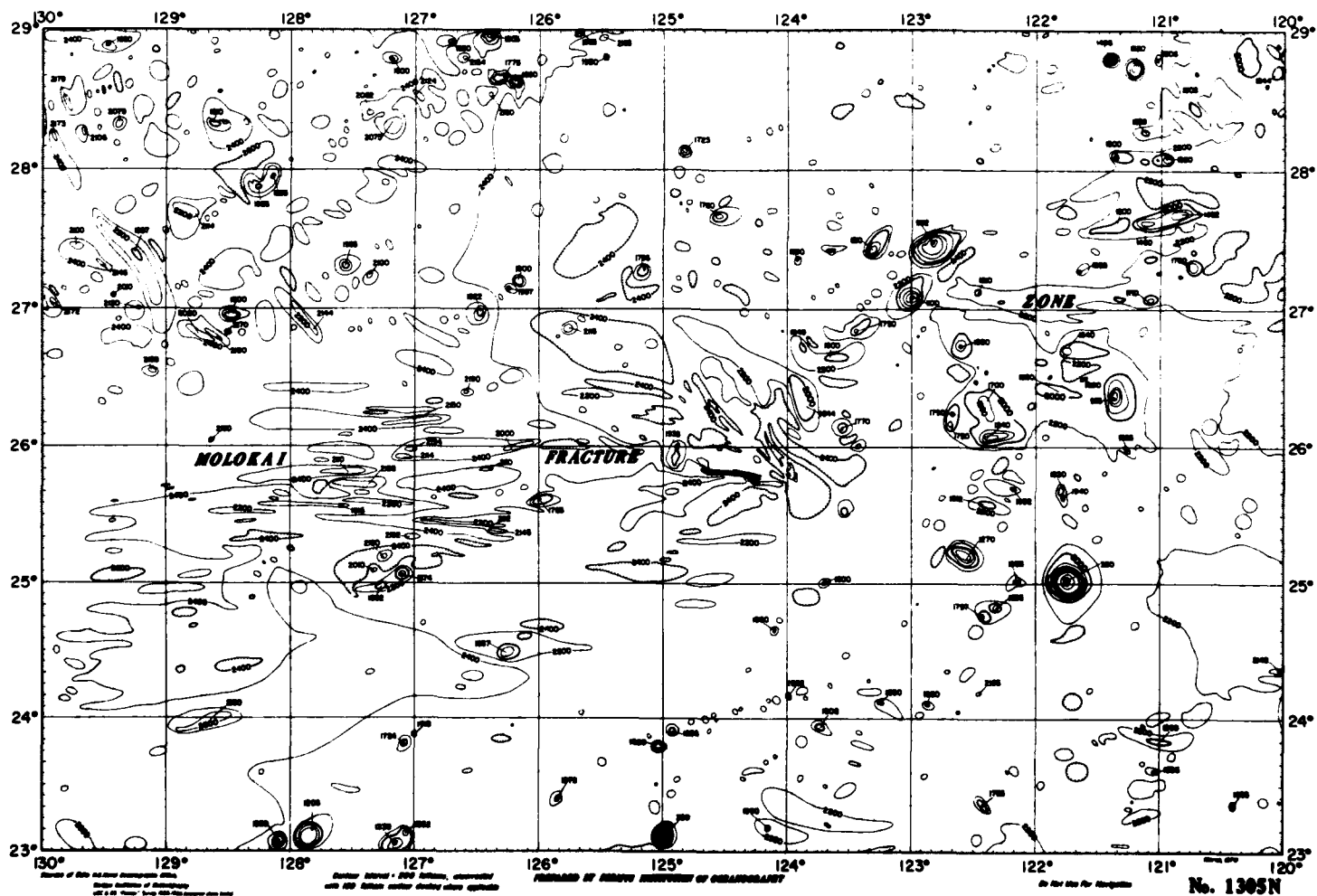


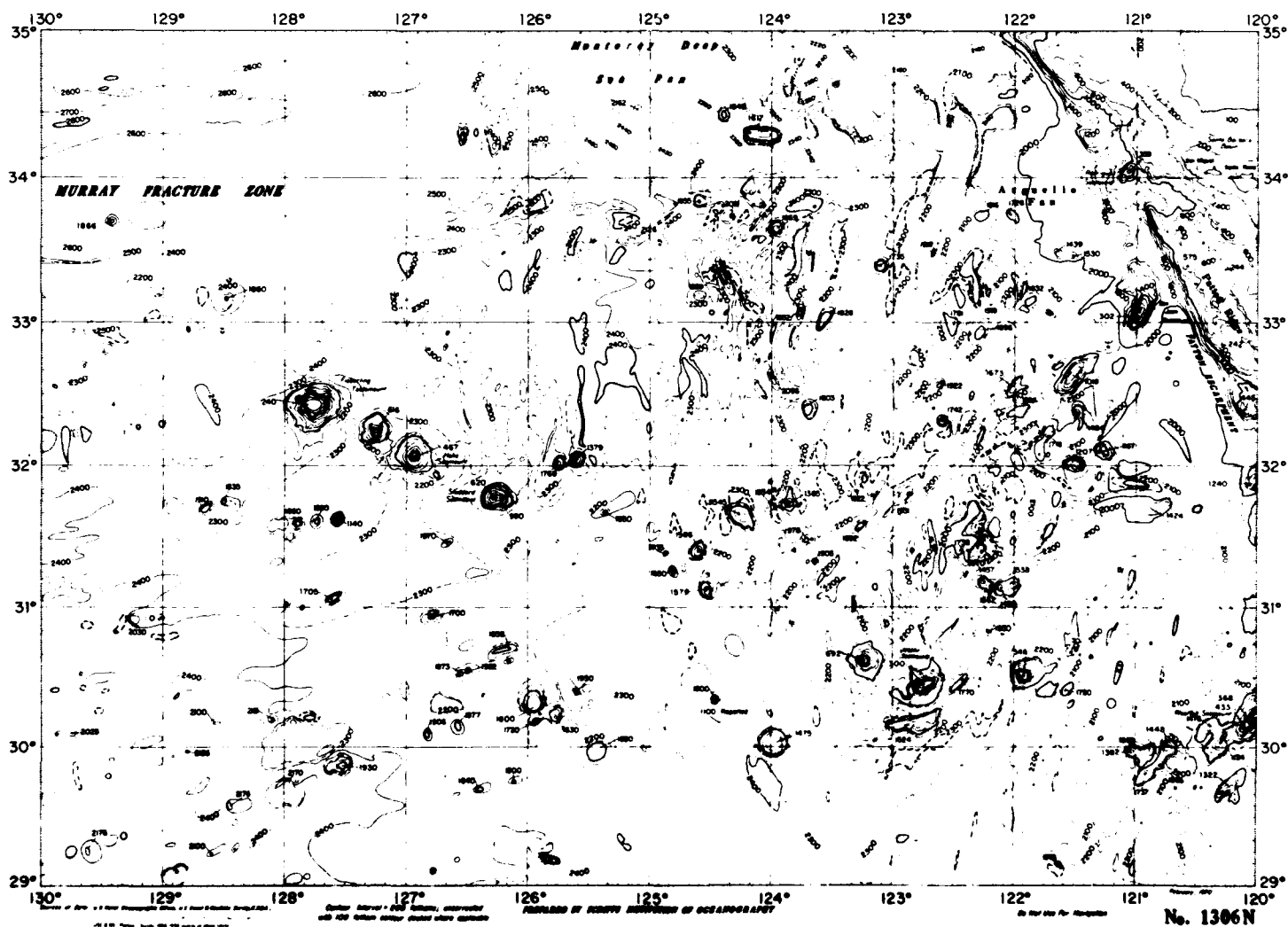


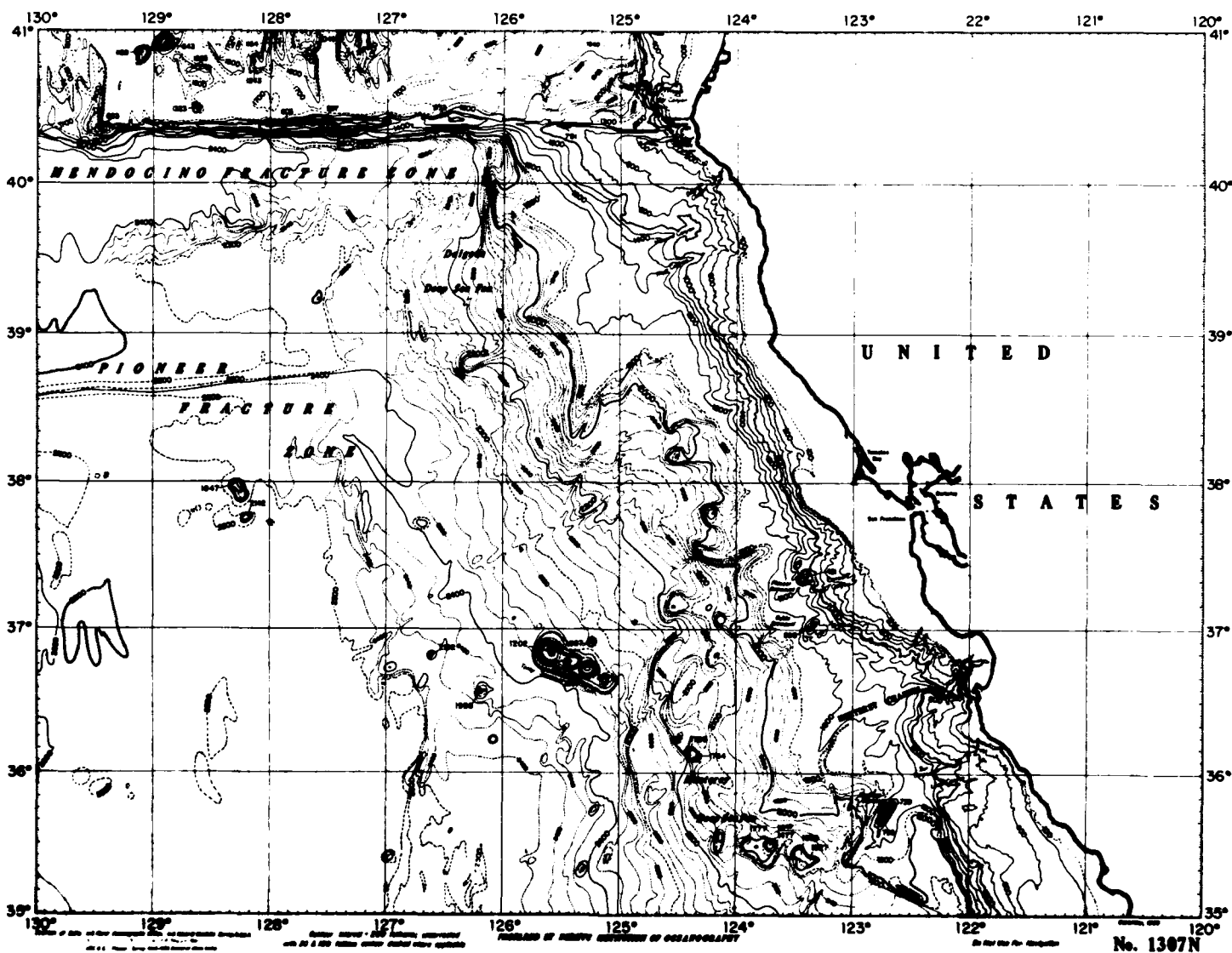


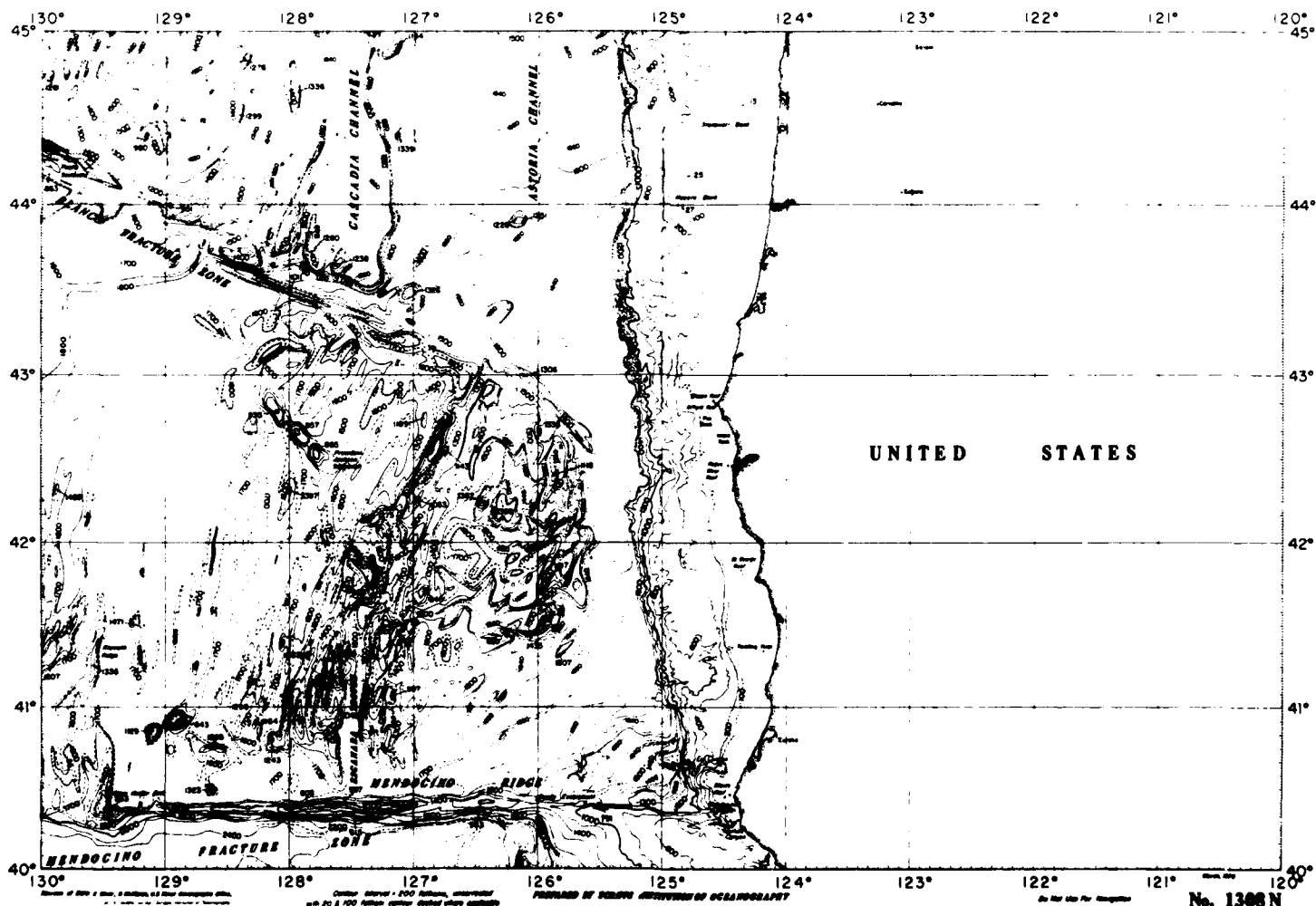


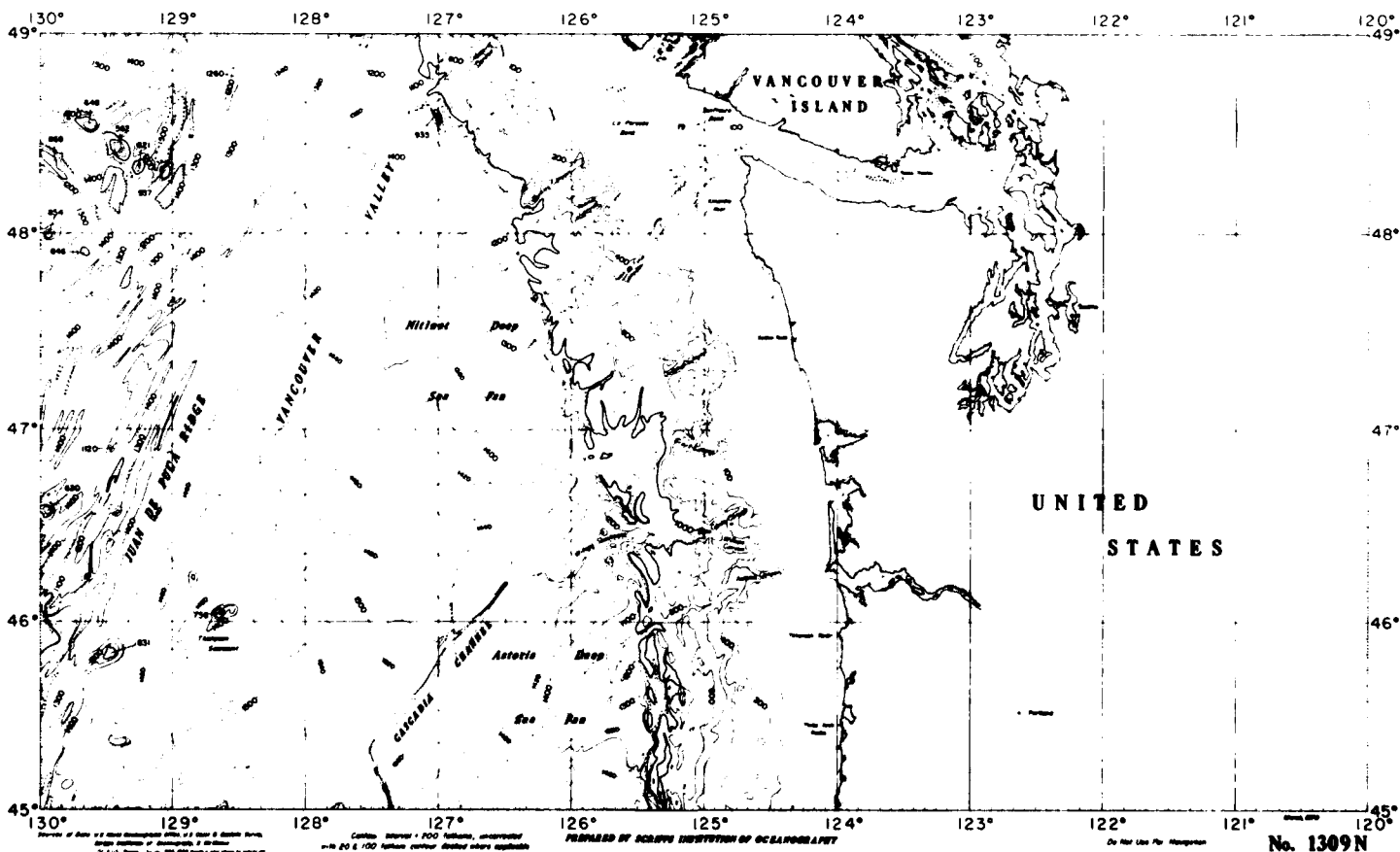


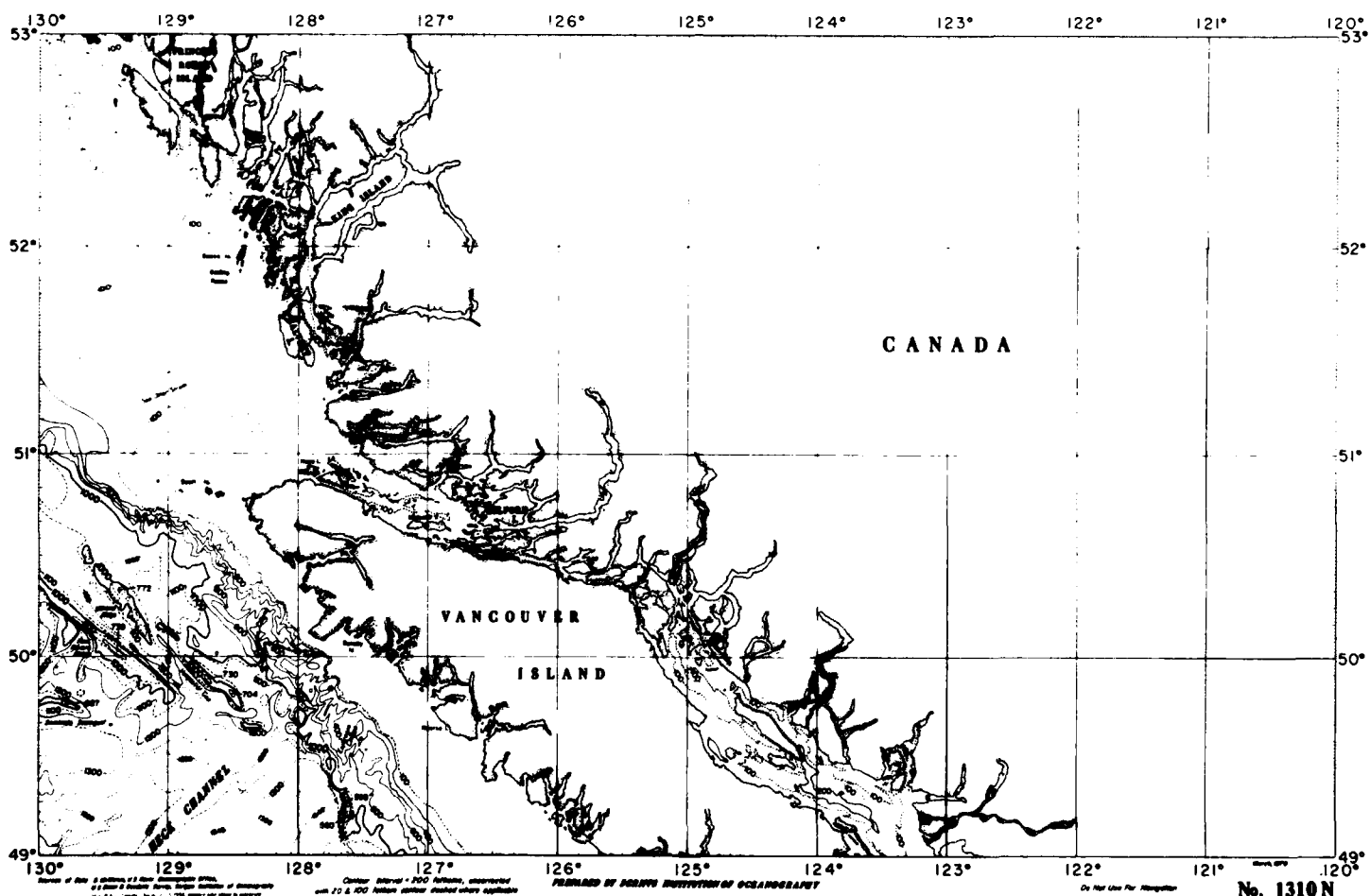




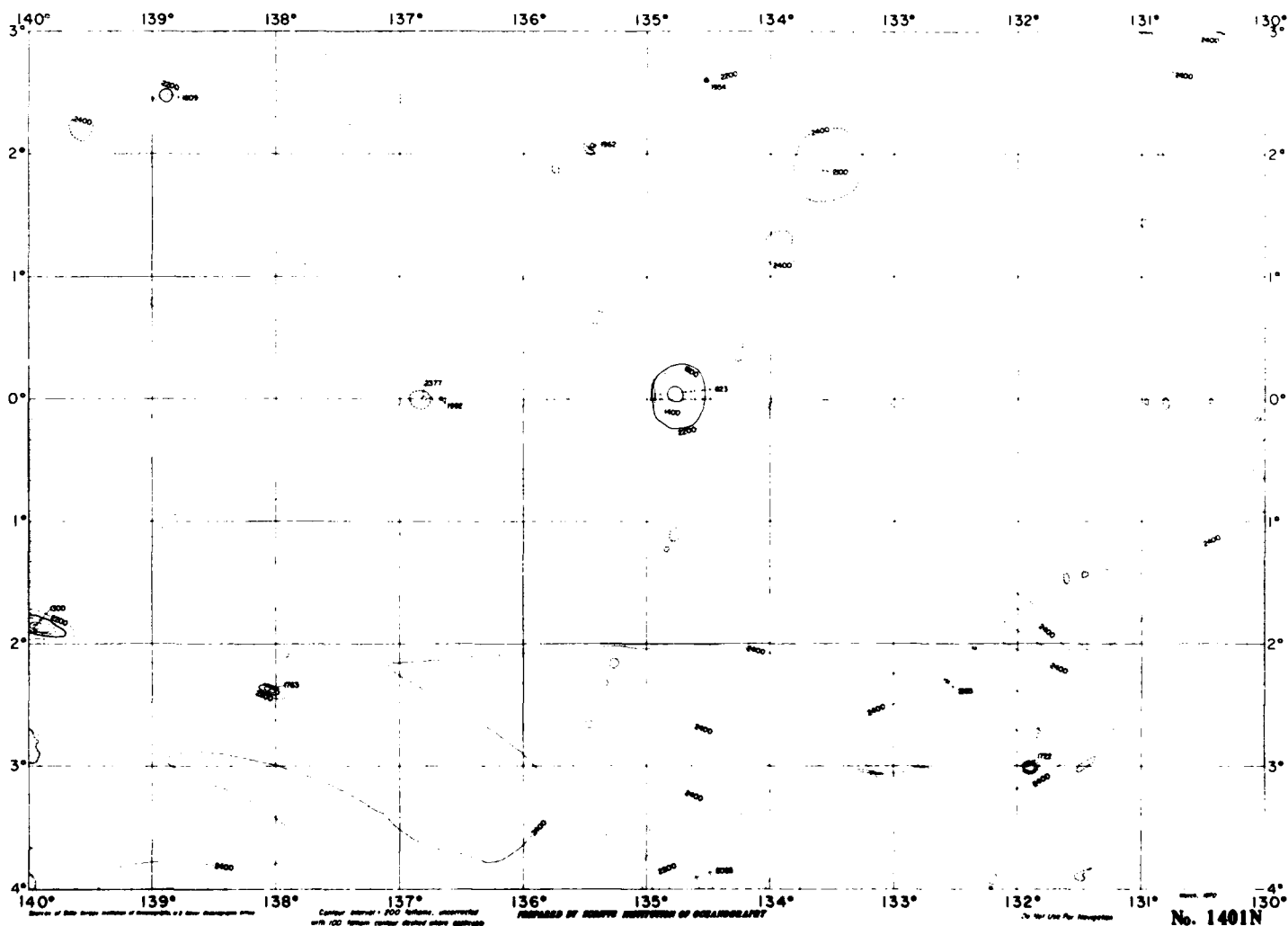


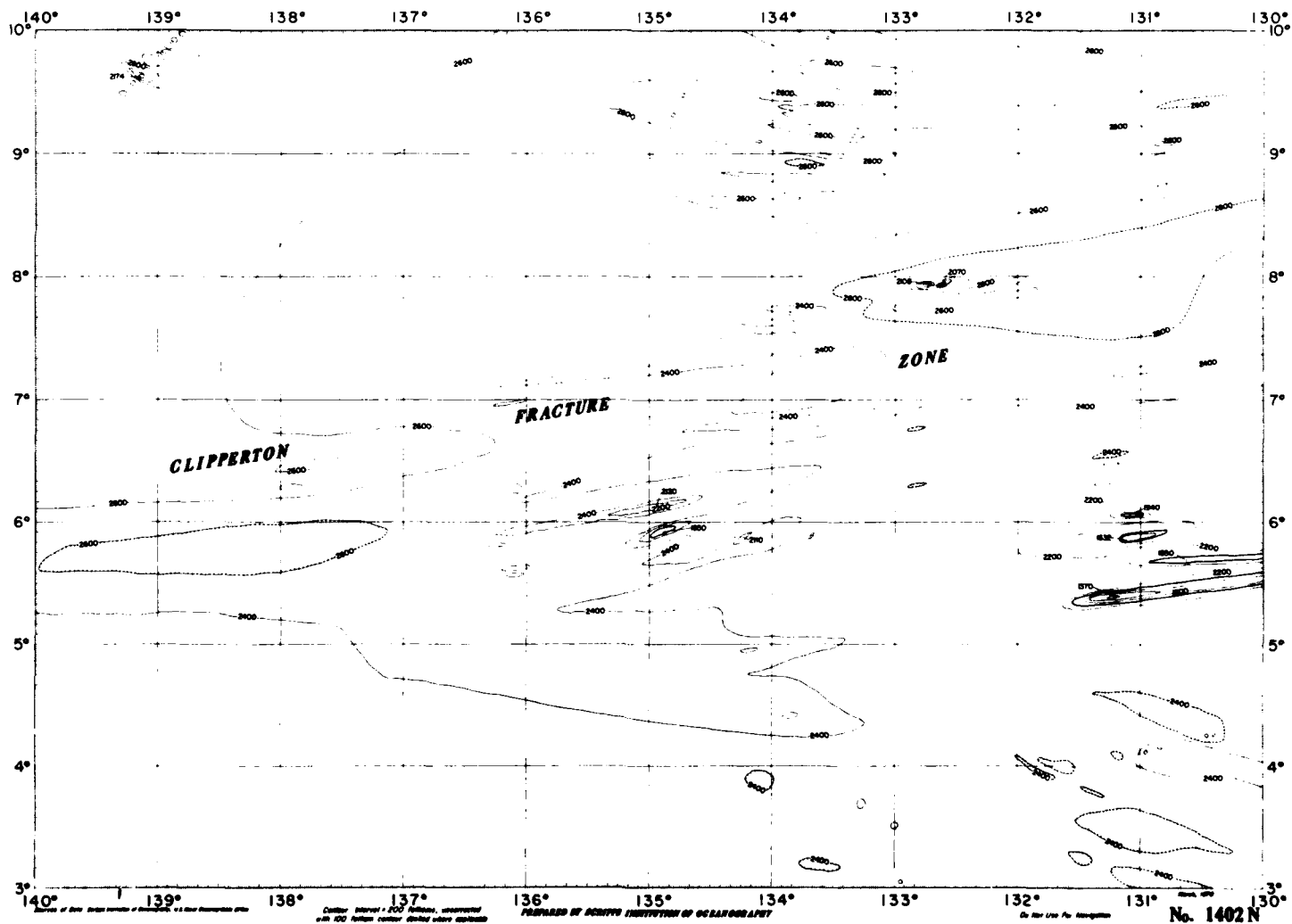






No. 1310N





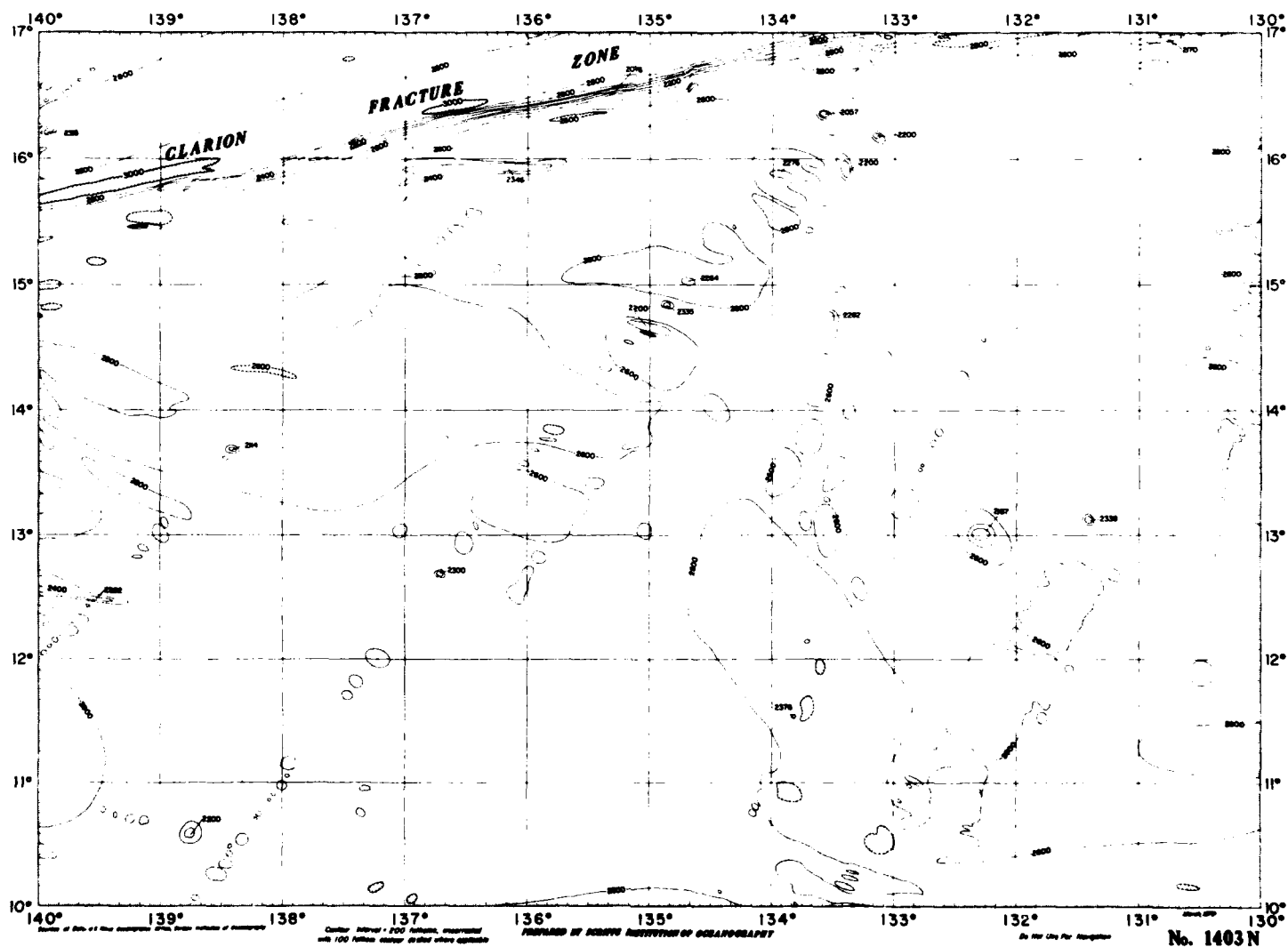
Source of Data: United States Hydrographic Office, U.S. Navy Hydrographic Office

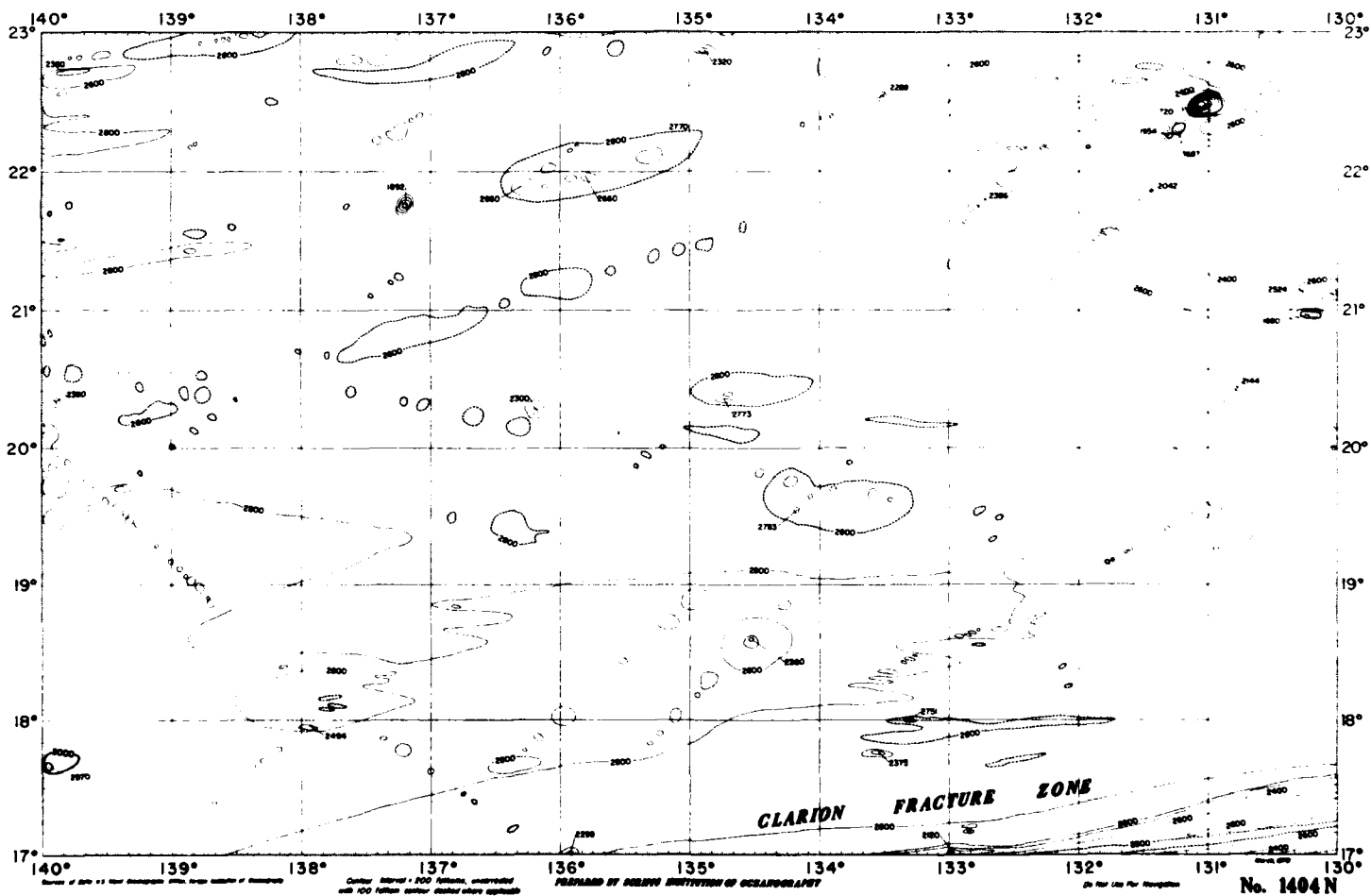
Contour Interval: 200 Fathoms, unshaded  
with 200 Fathom contour dashed where appropriate

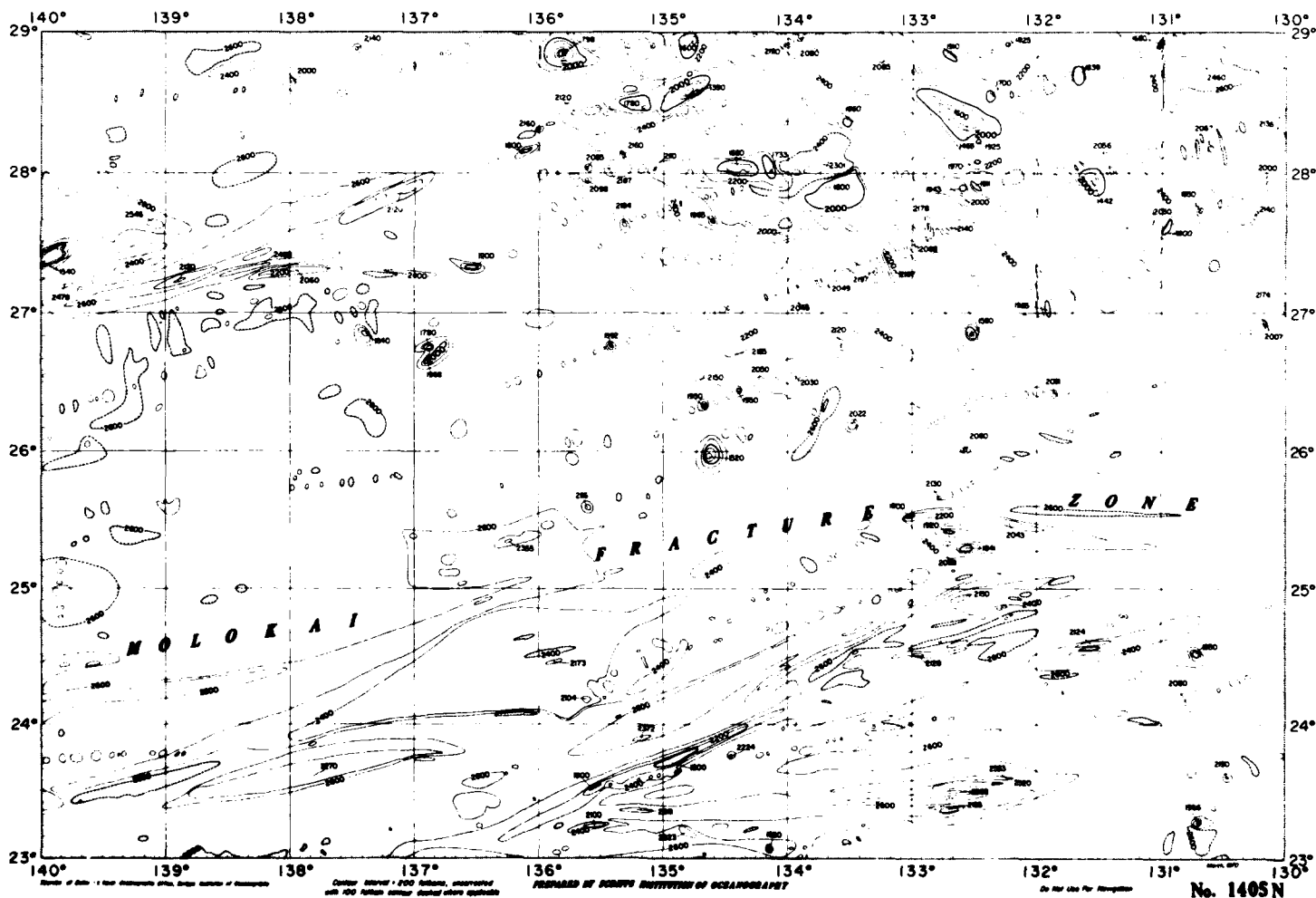
PREPARED BY SCHIFFS INSTITUTION OF OCEANOGRAPHY

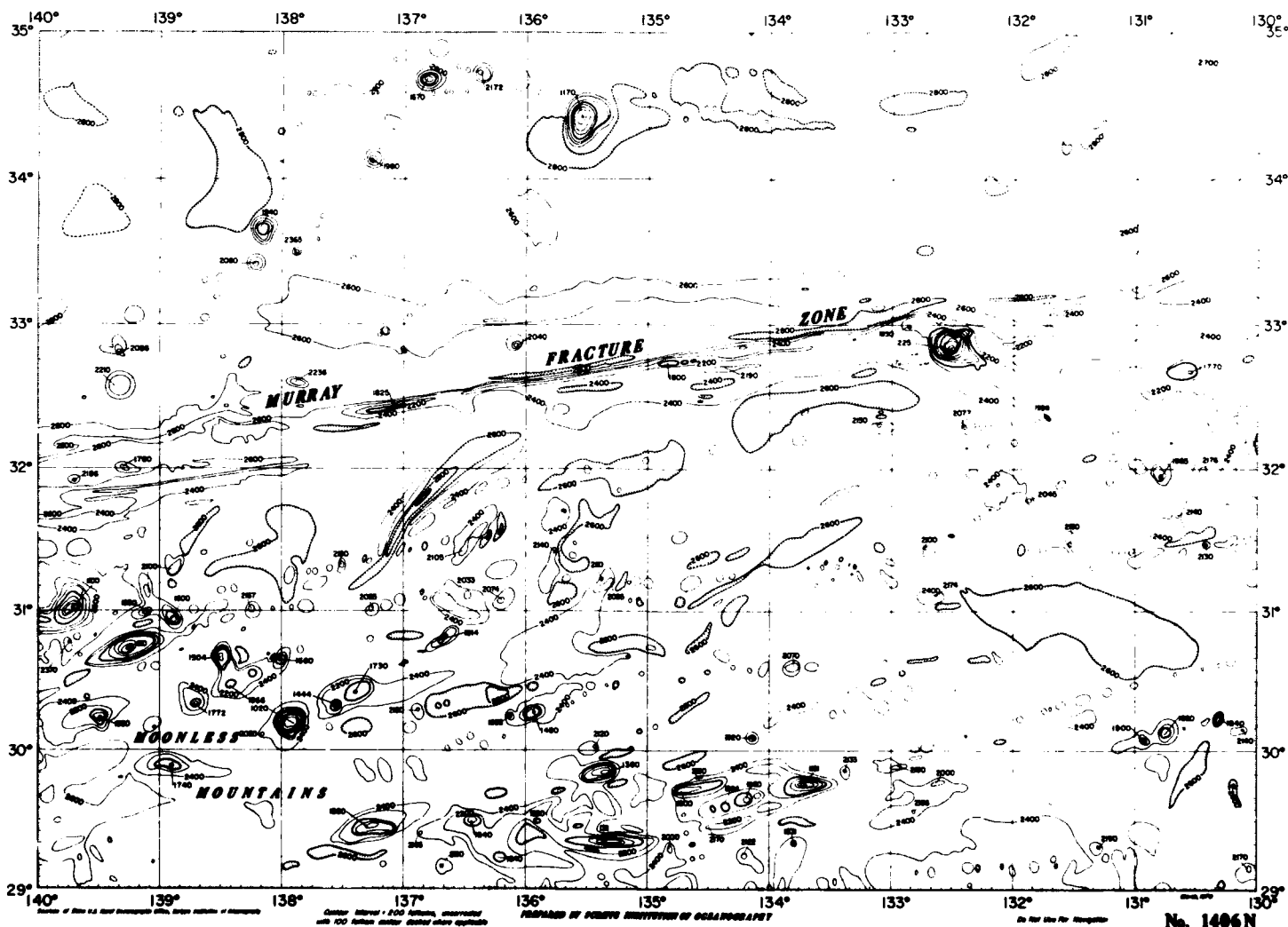
On the Use of the Hydrographic

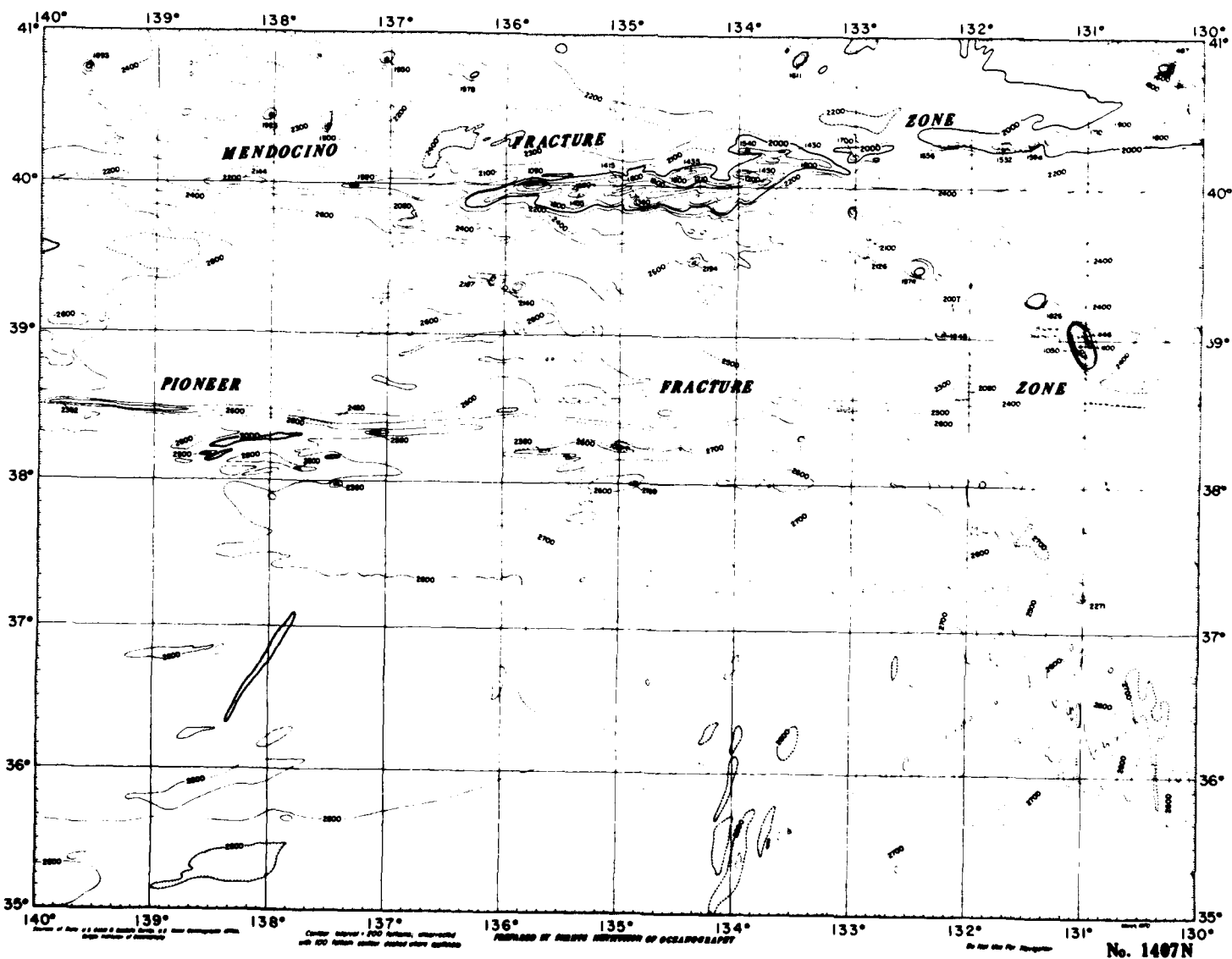
No. 1402N



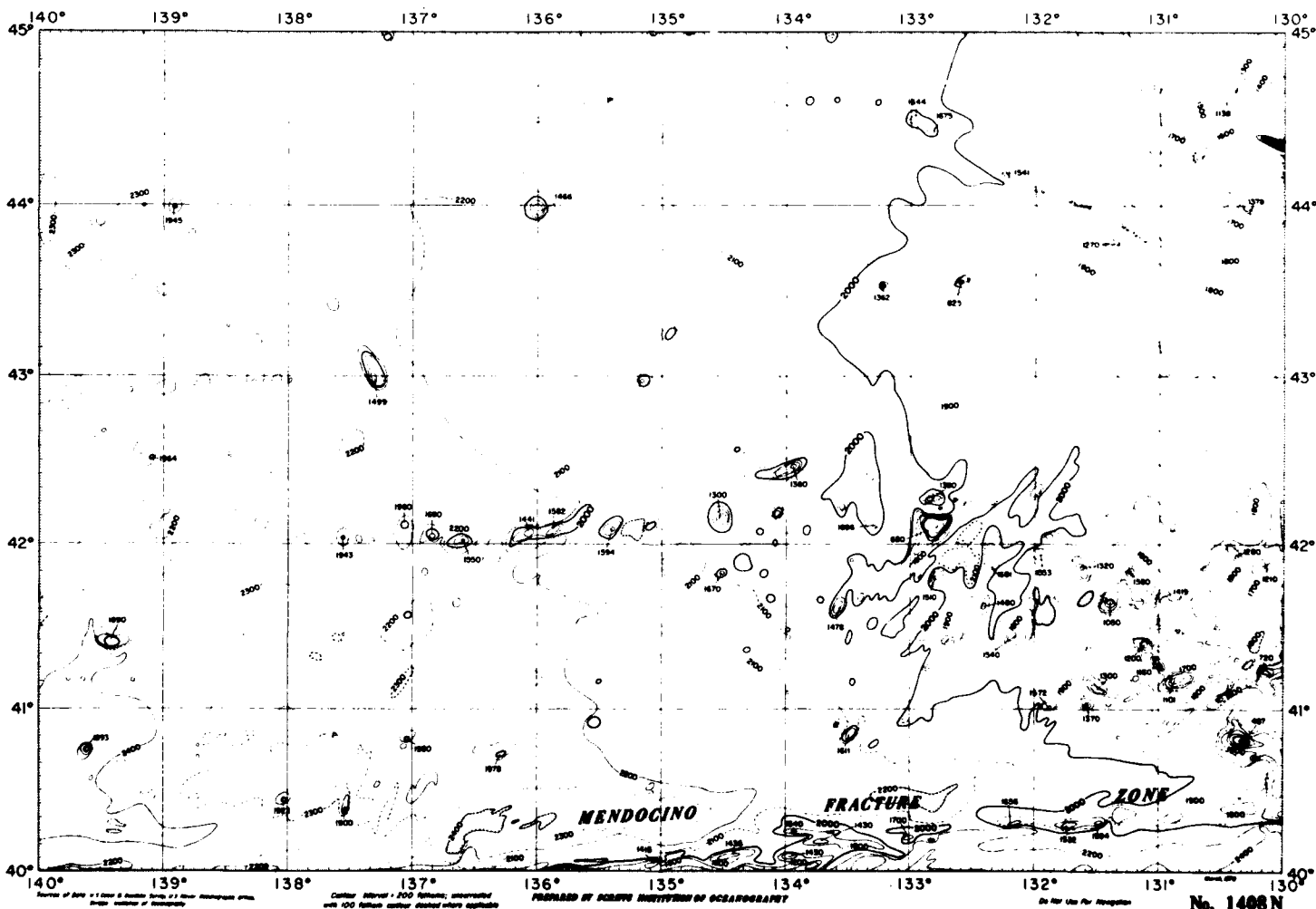


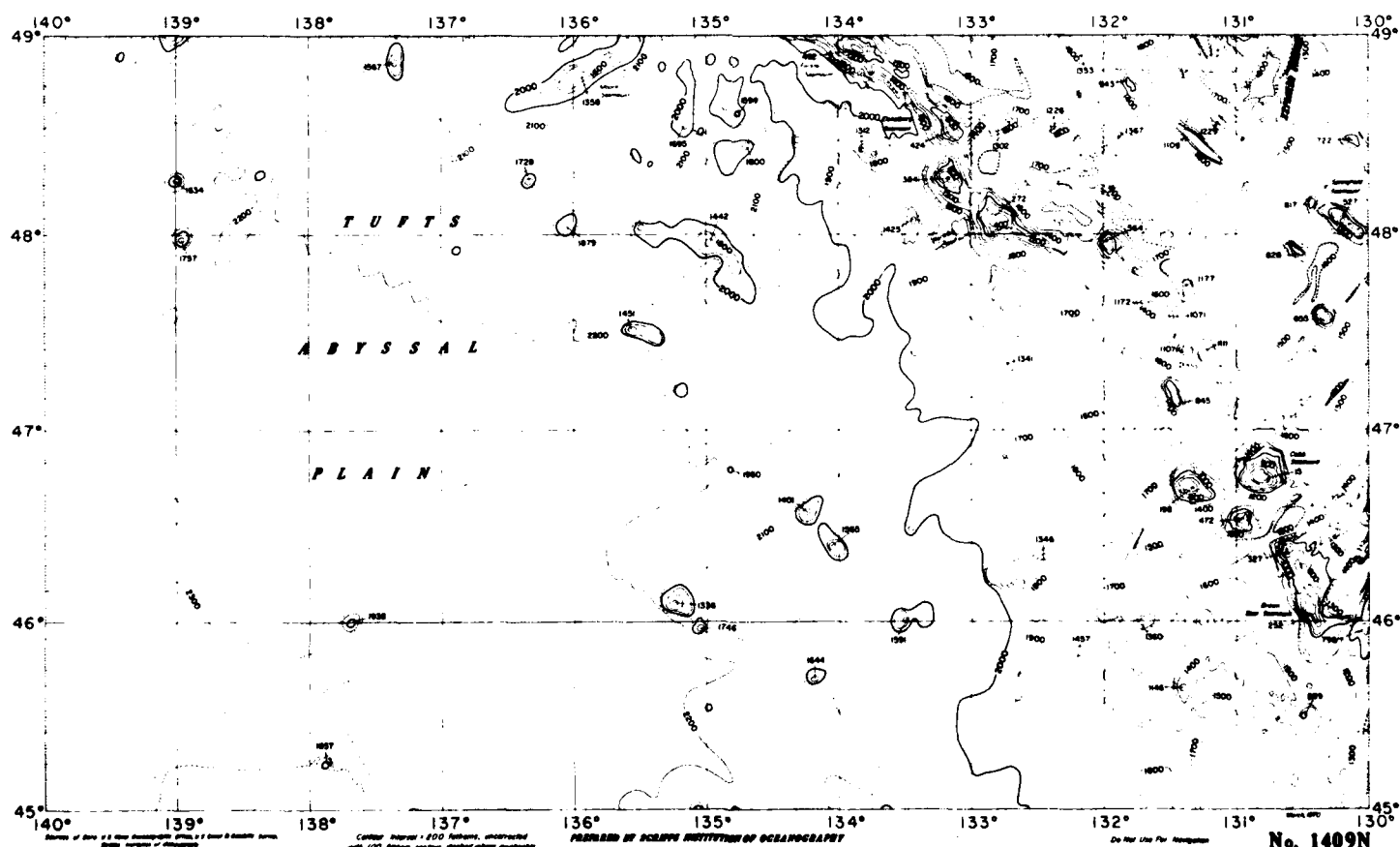


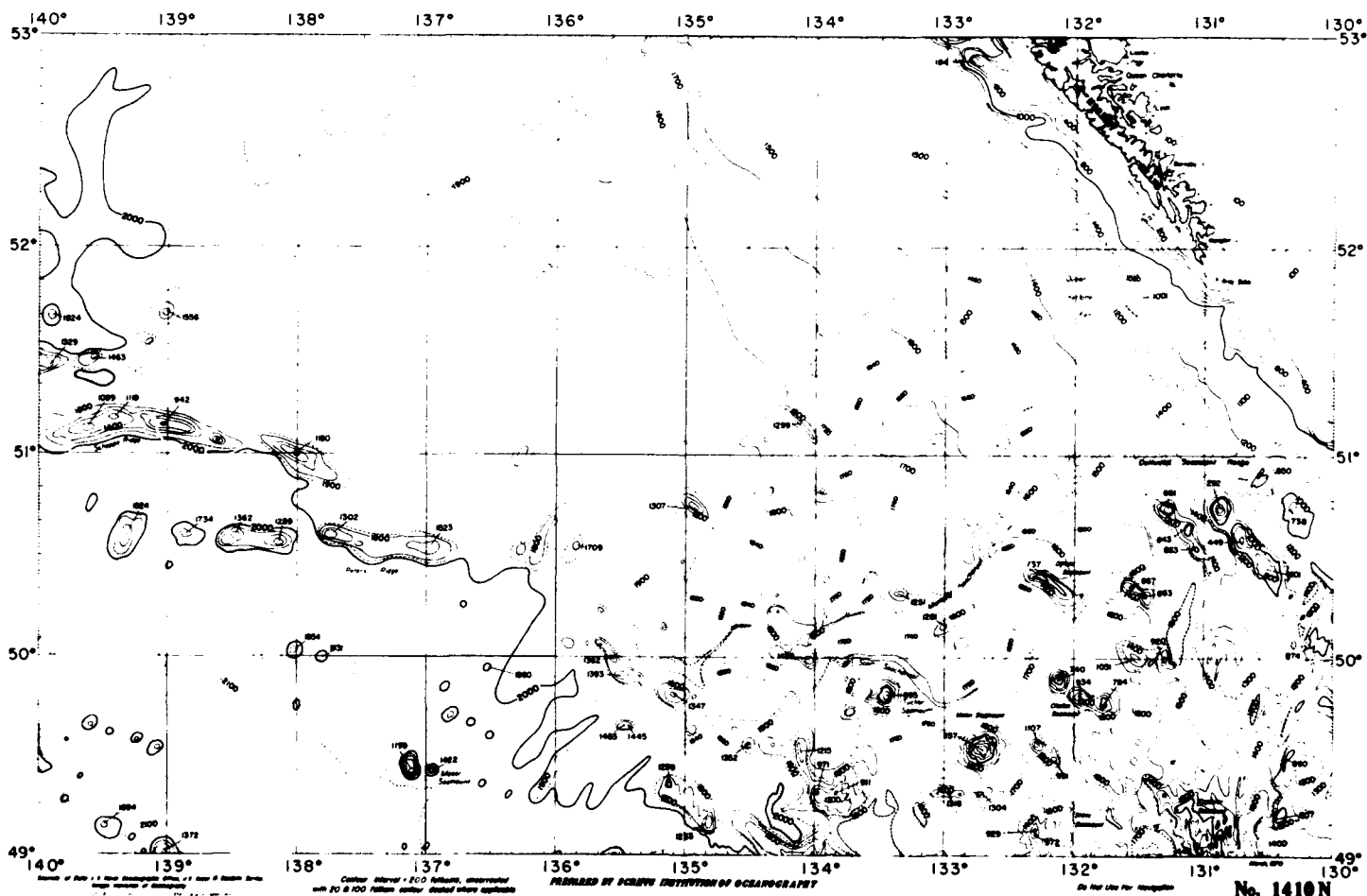


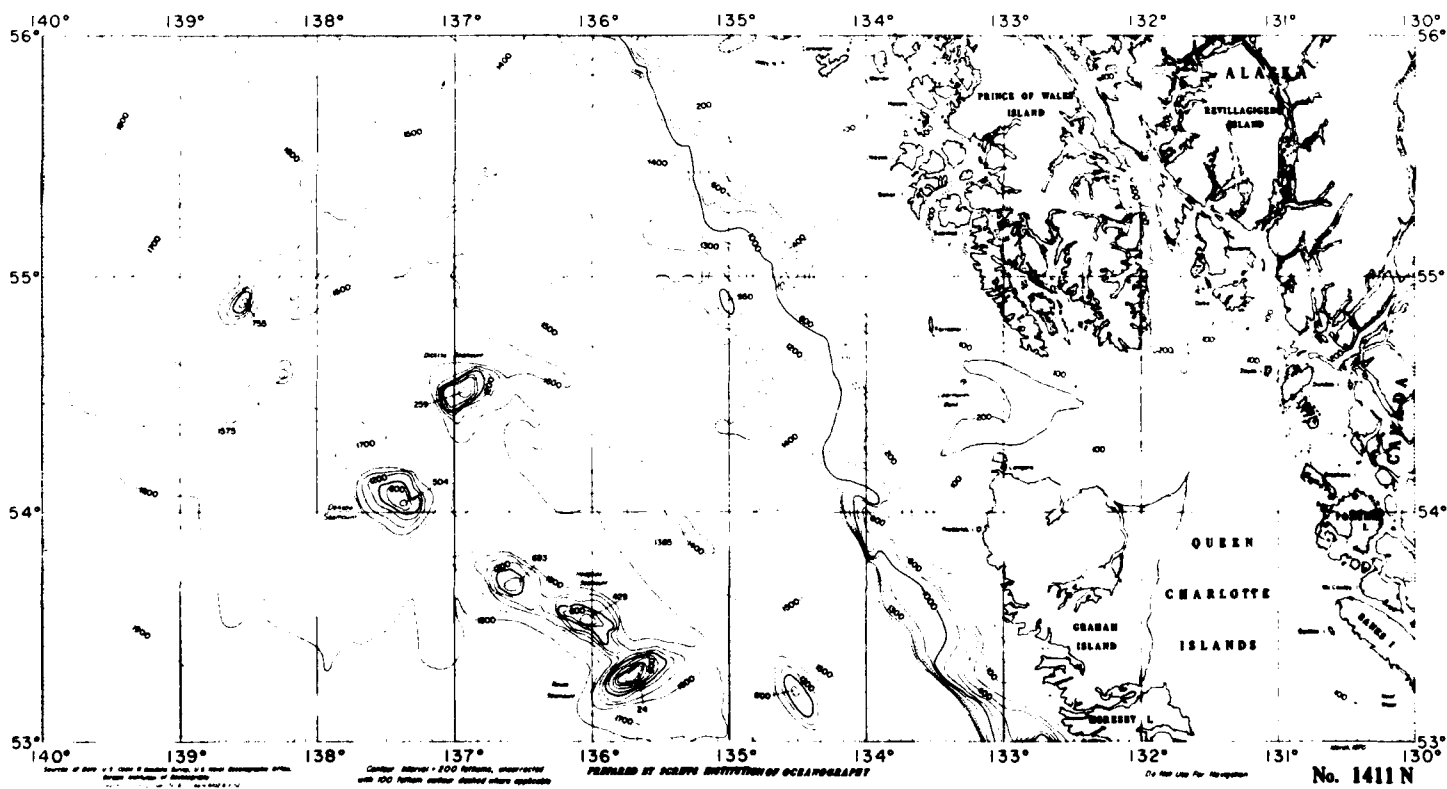


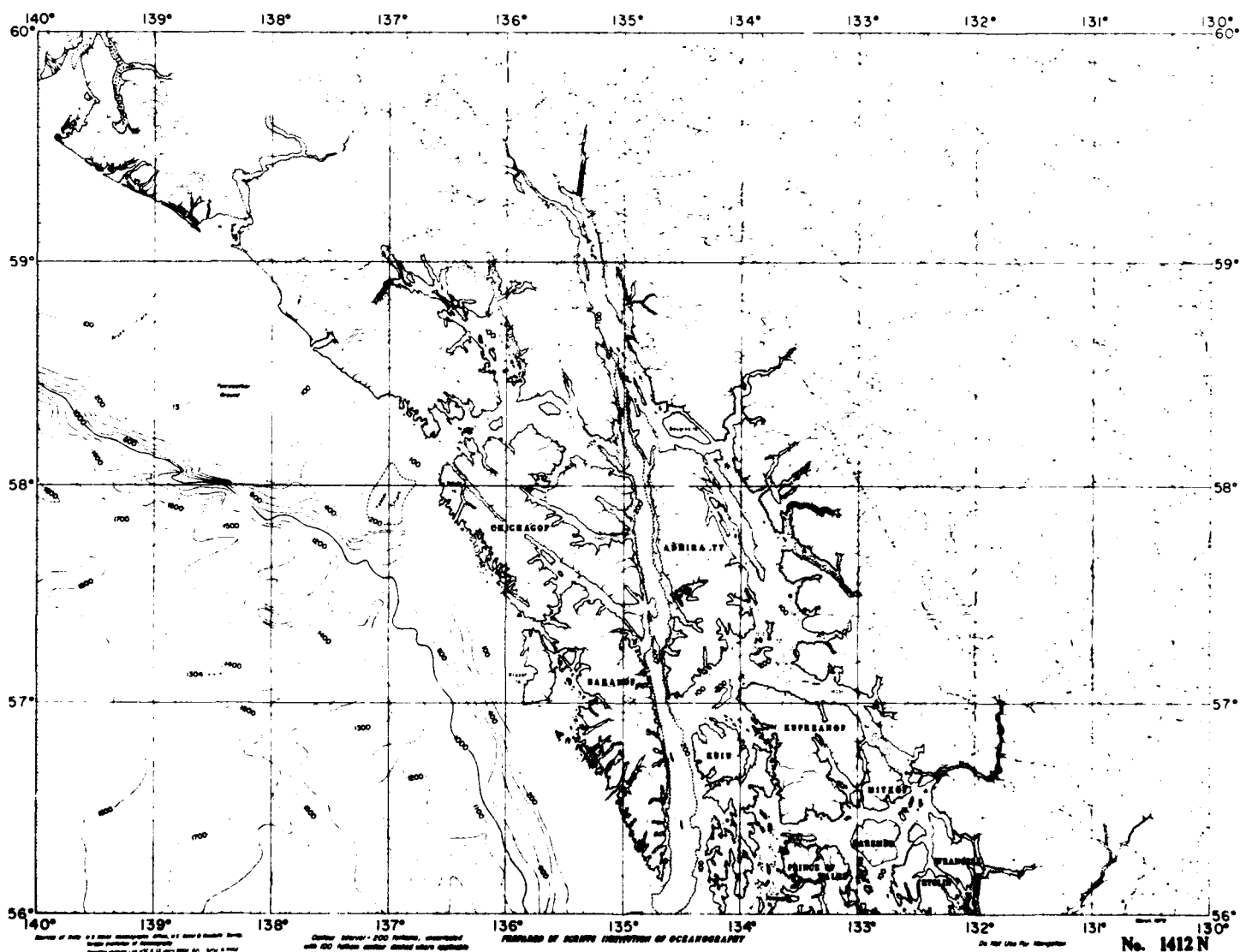
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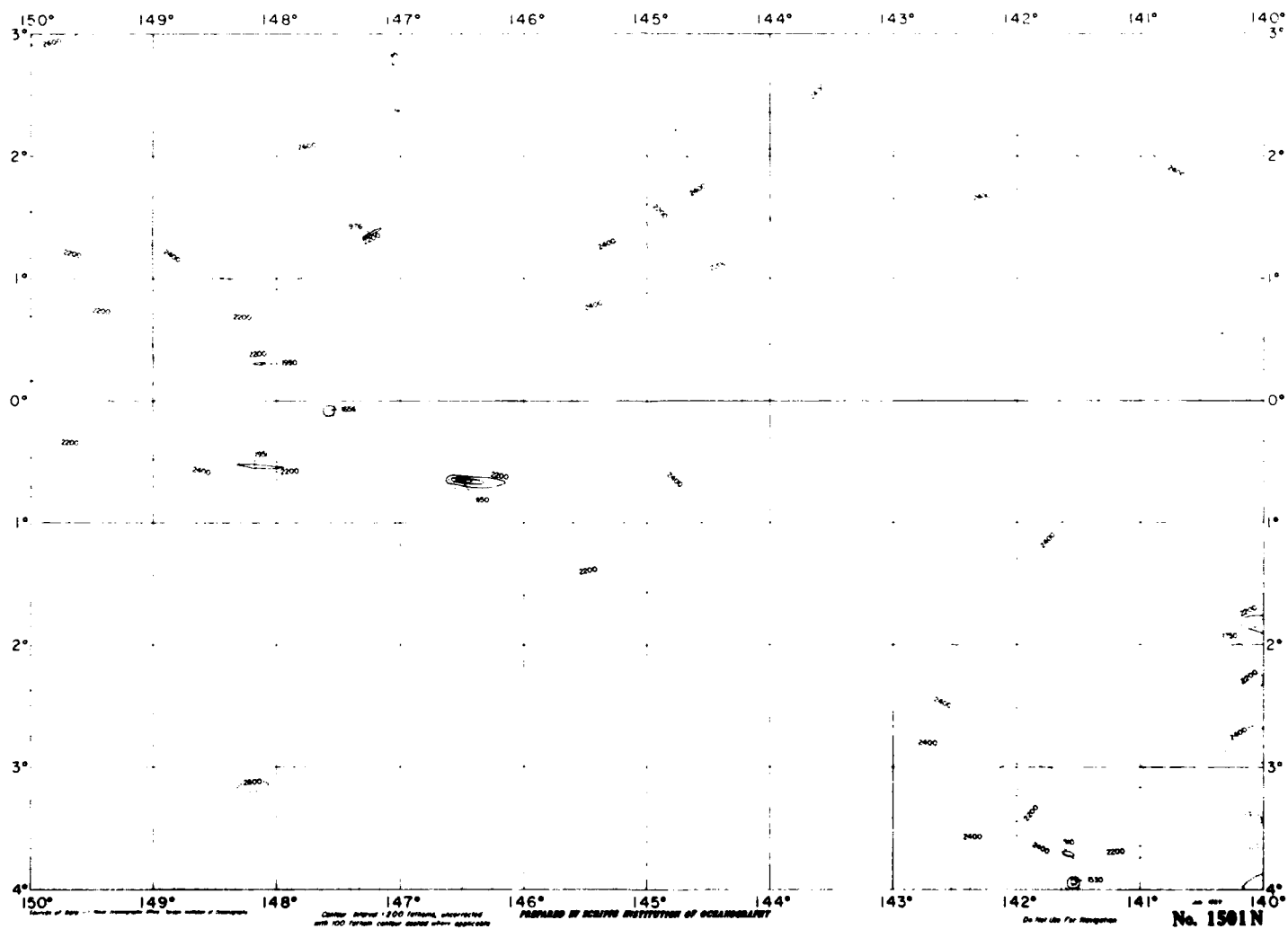


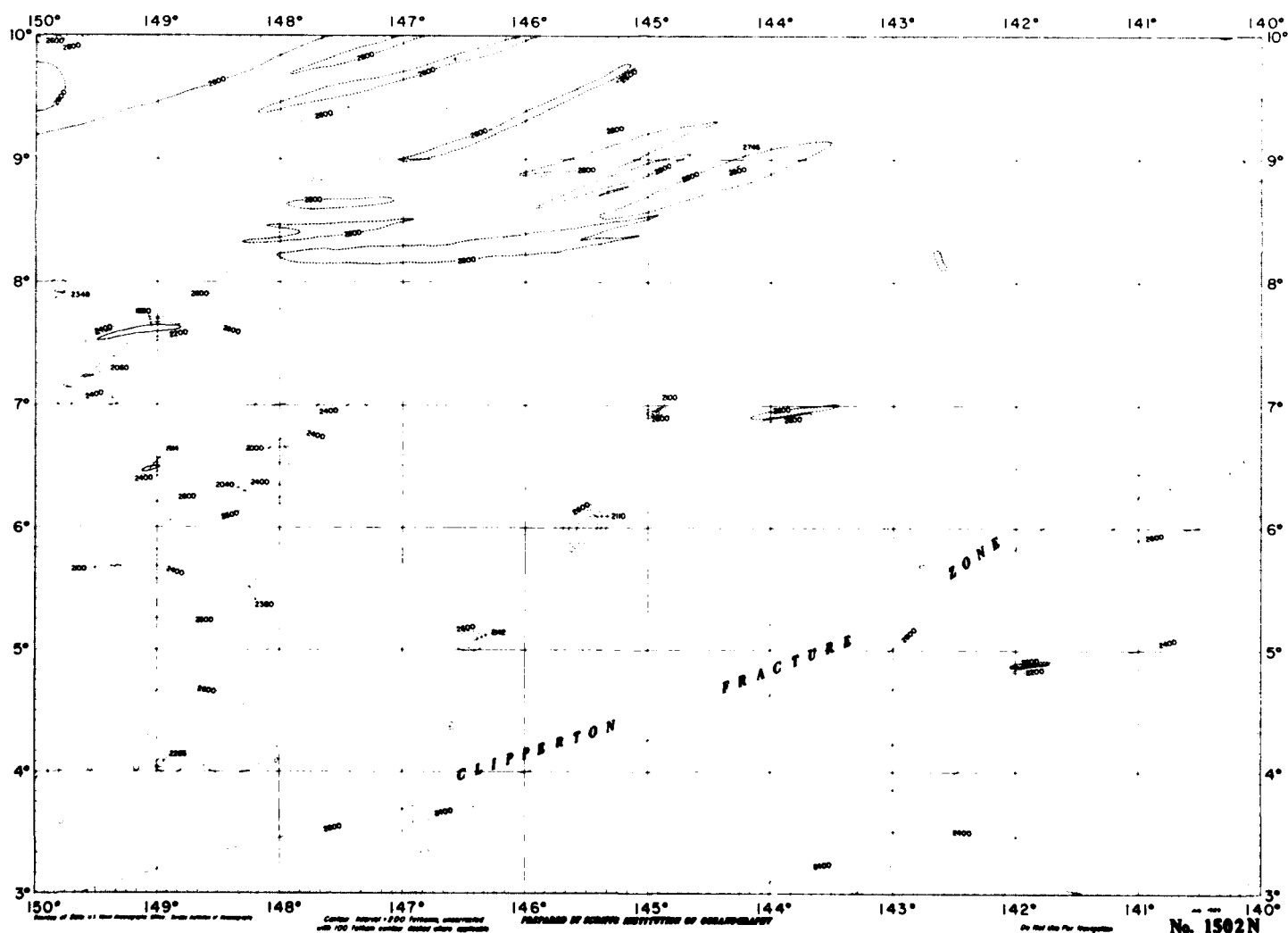


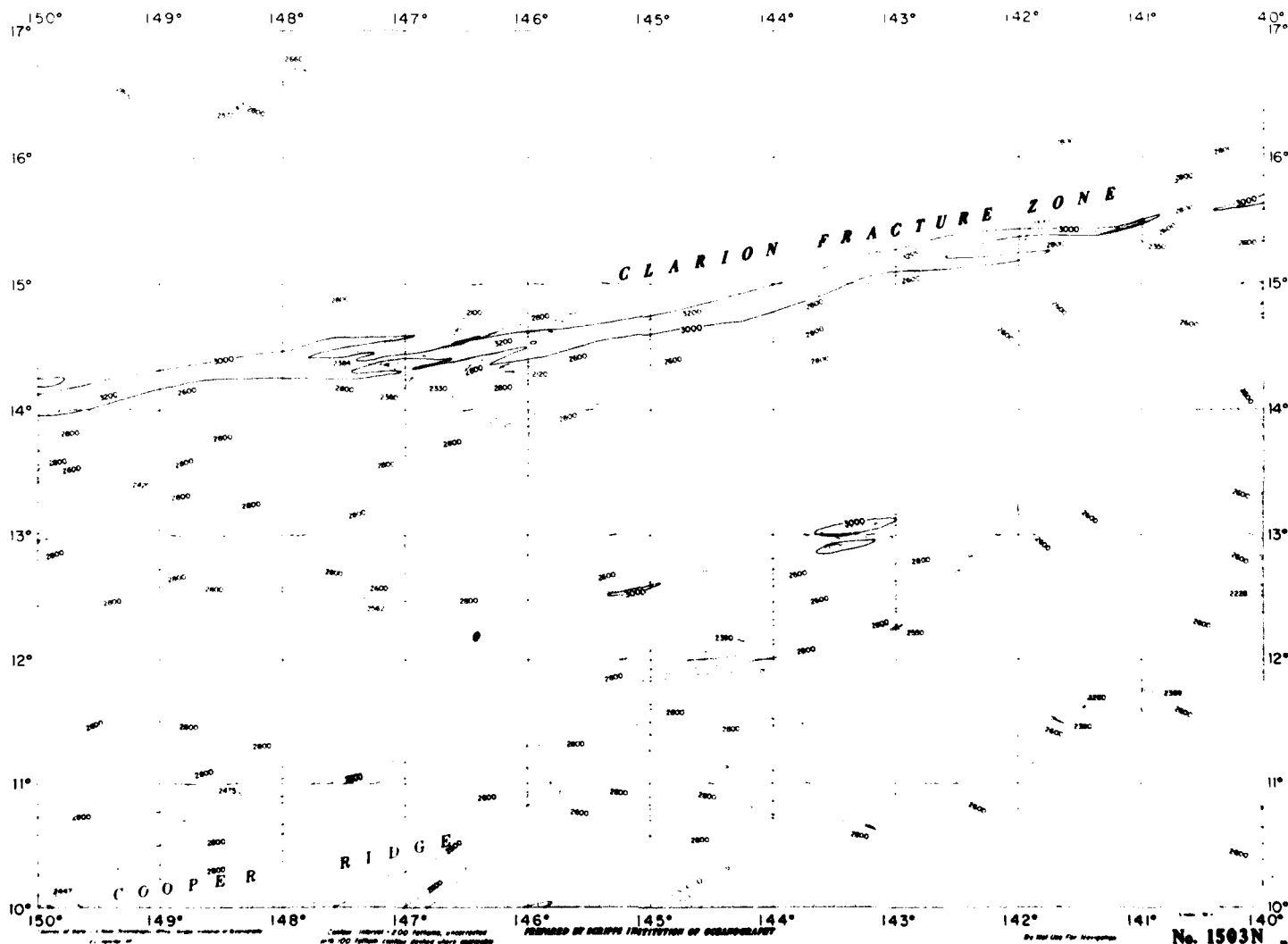


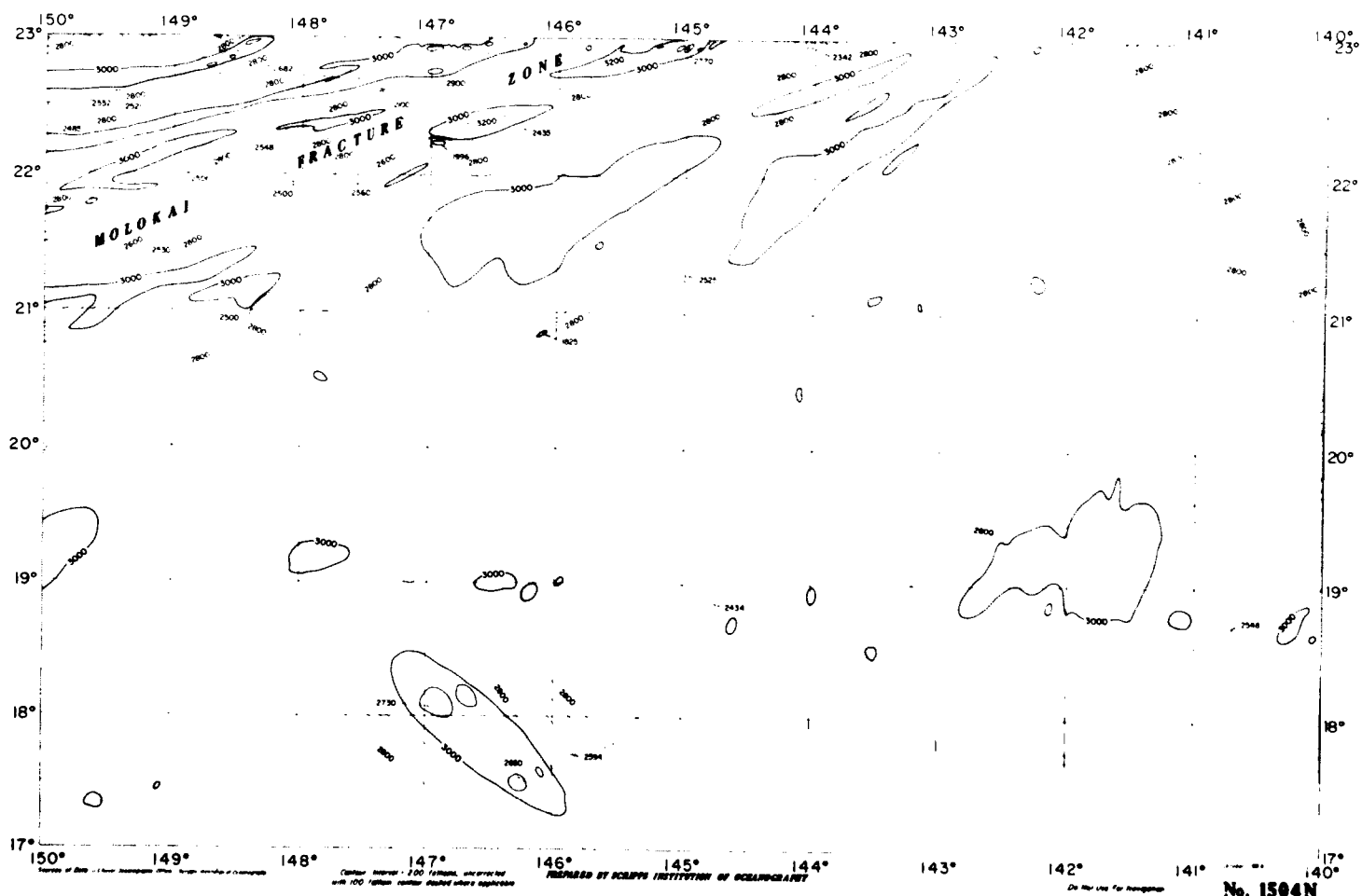


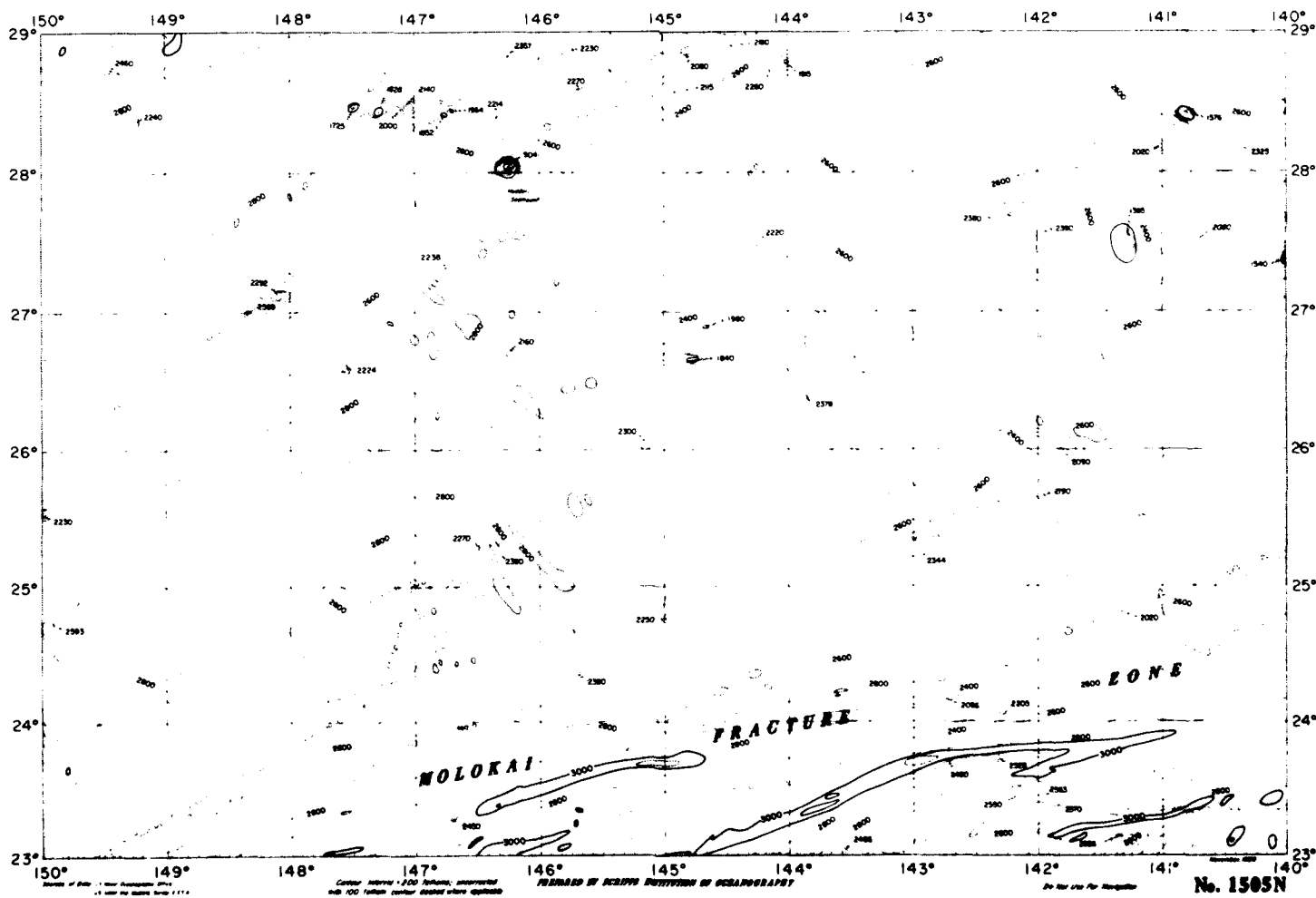


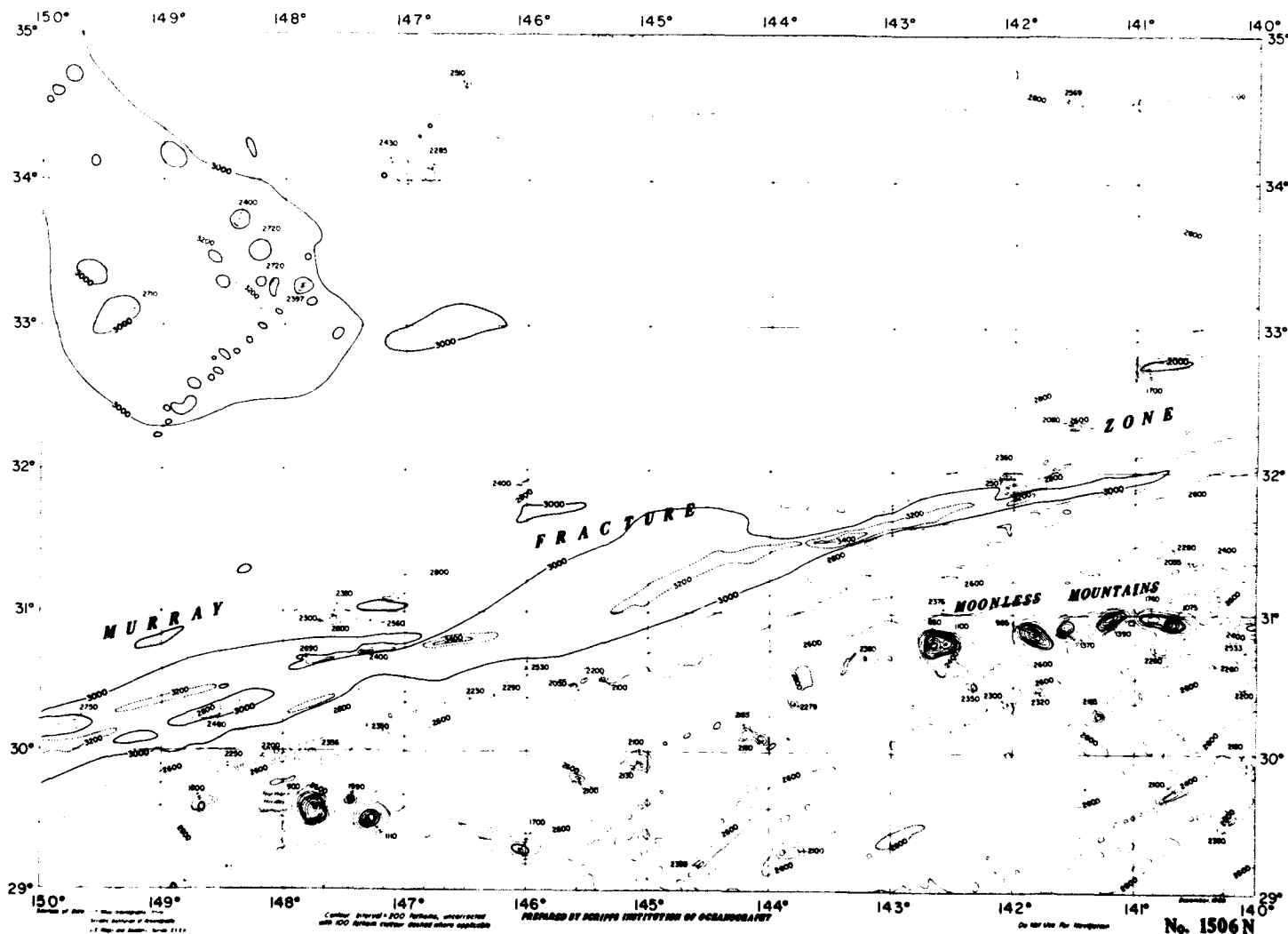


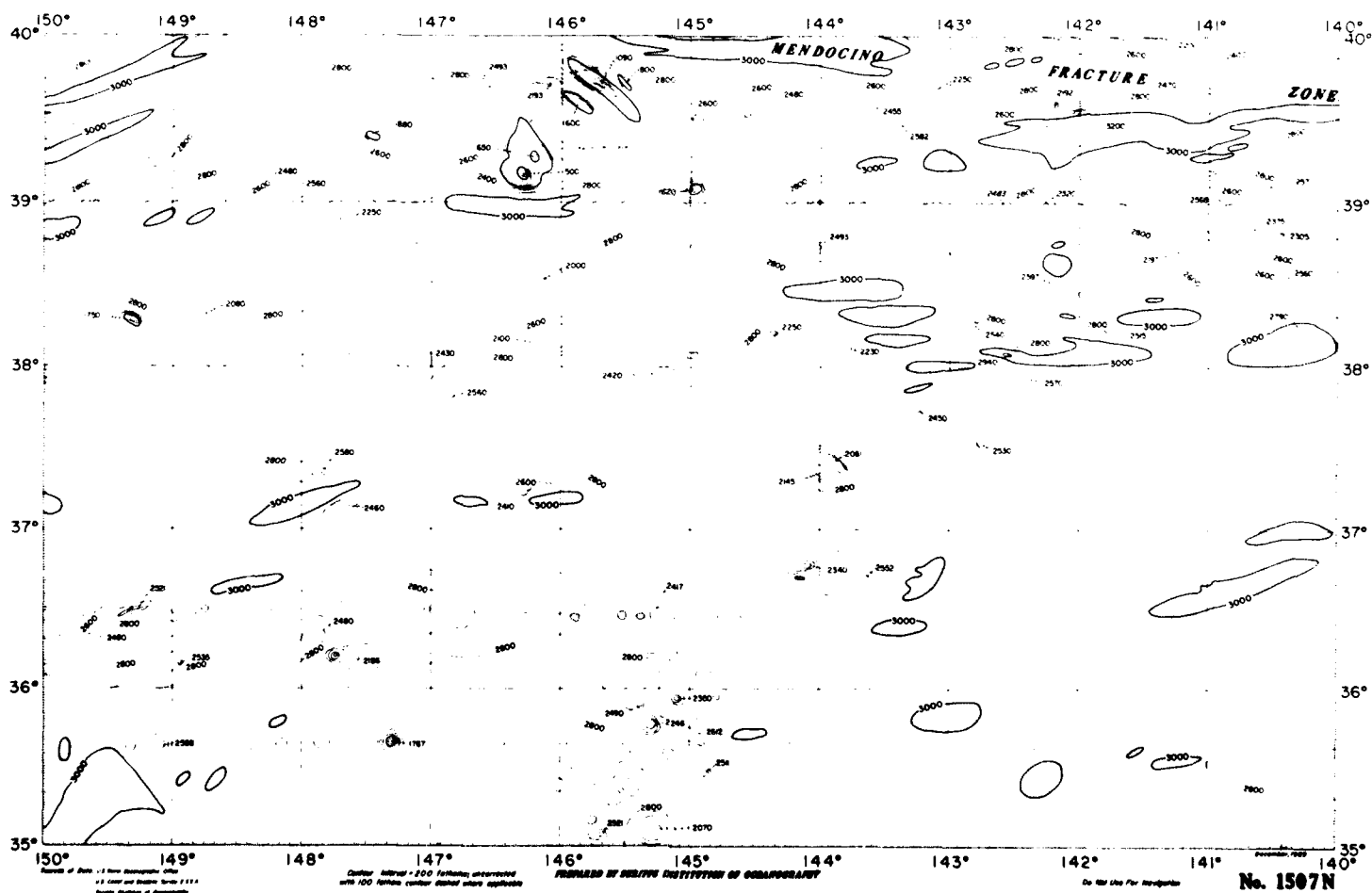


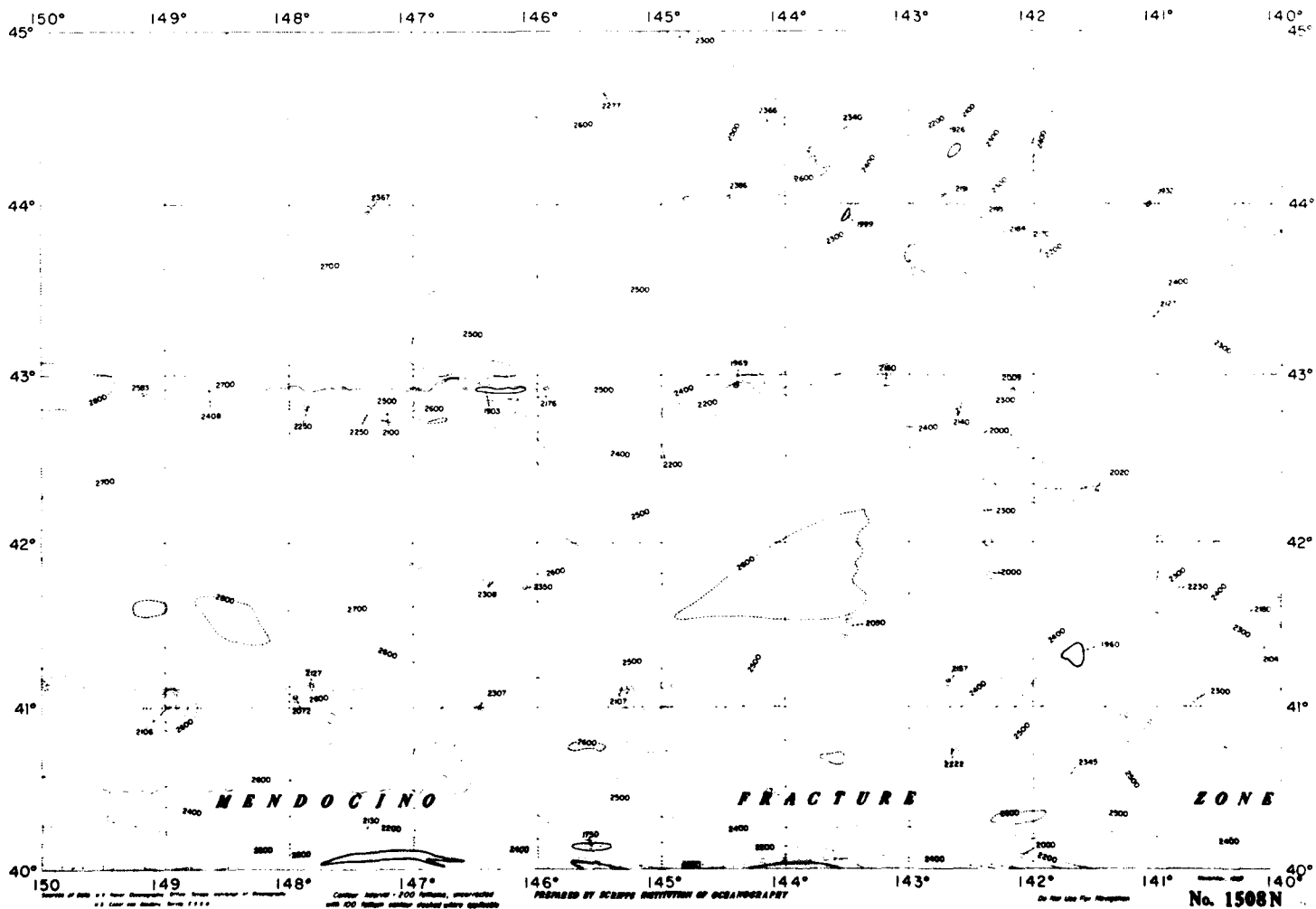


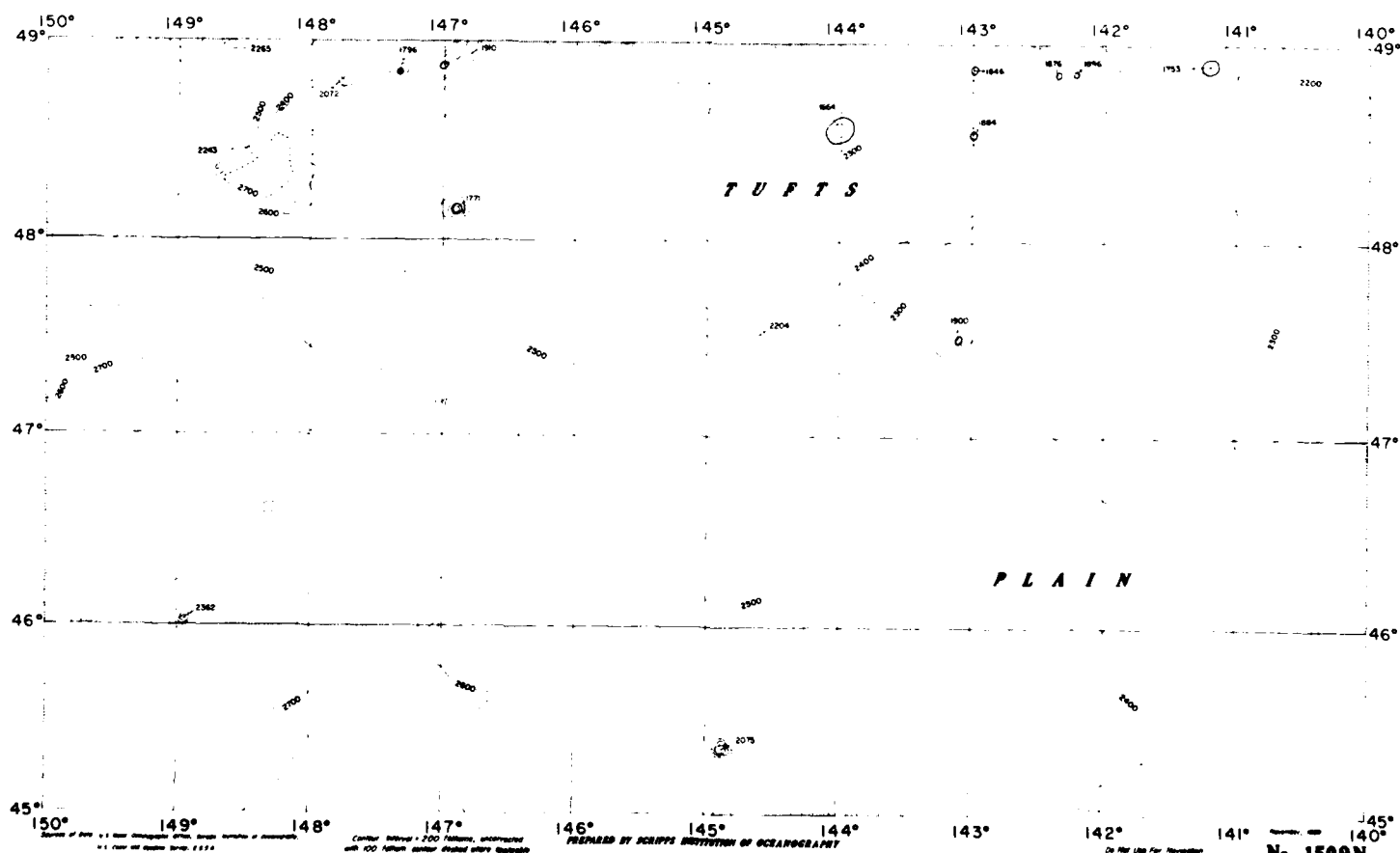




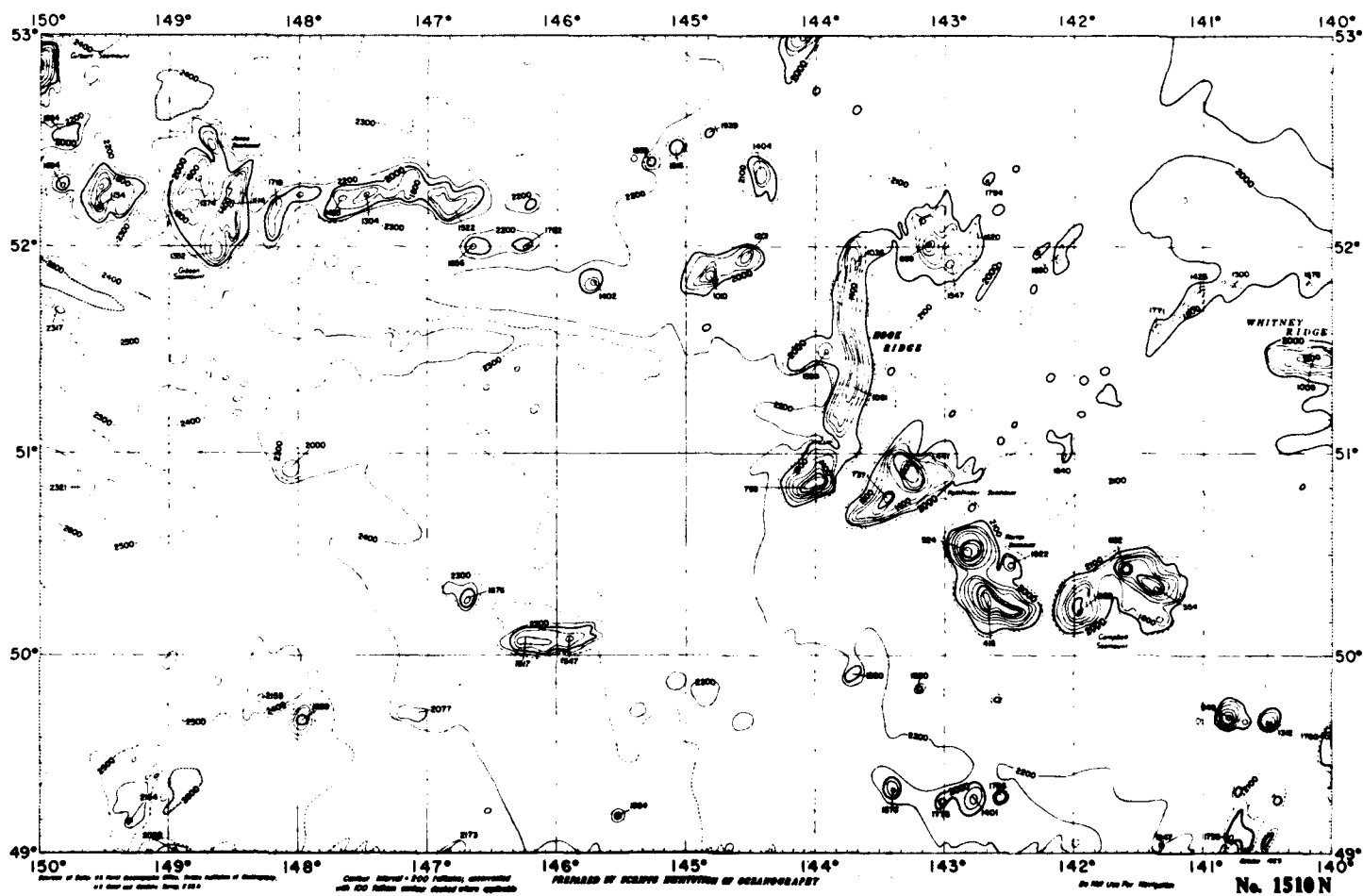


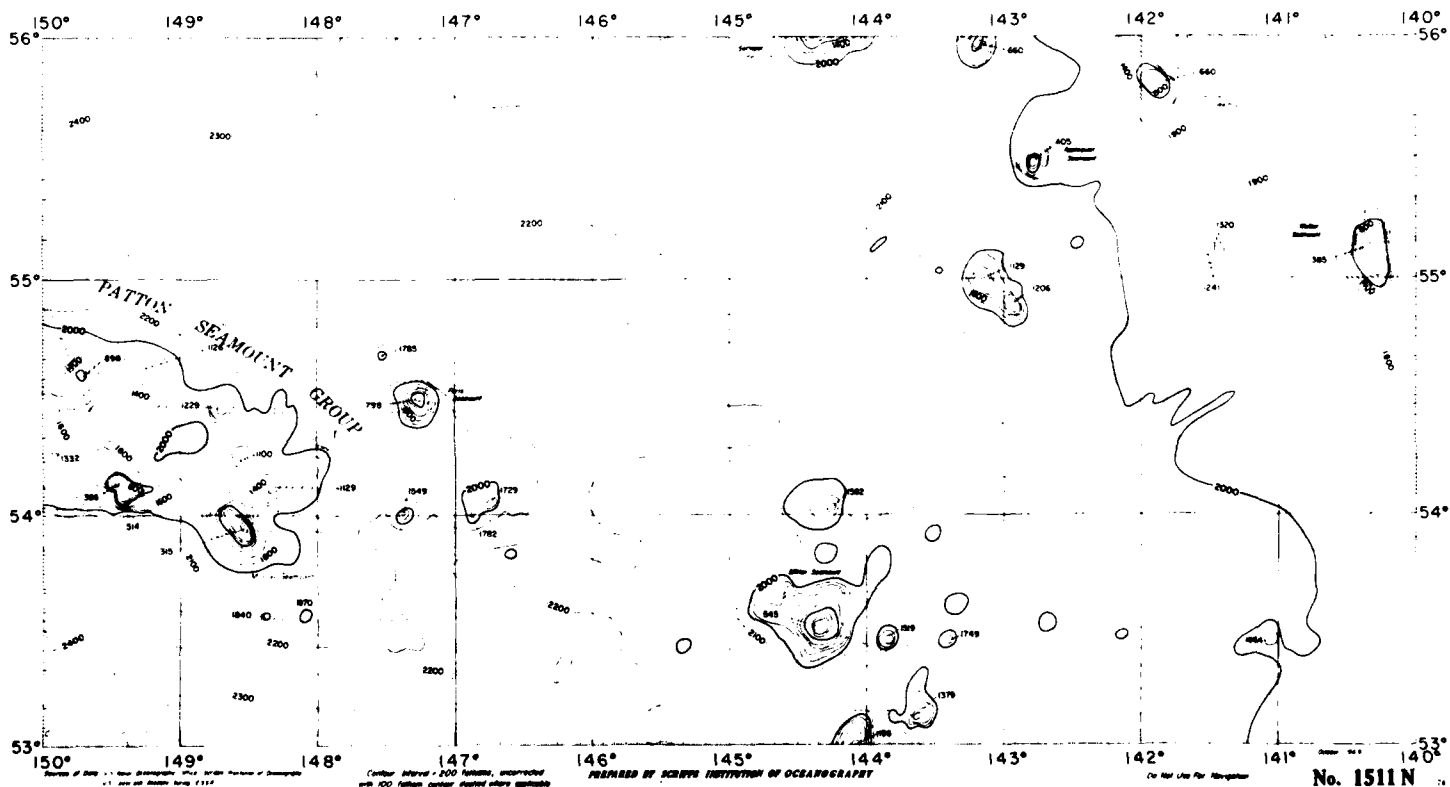


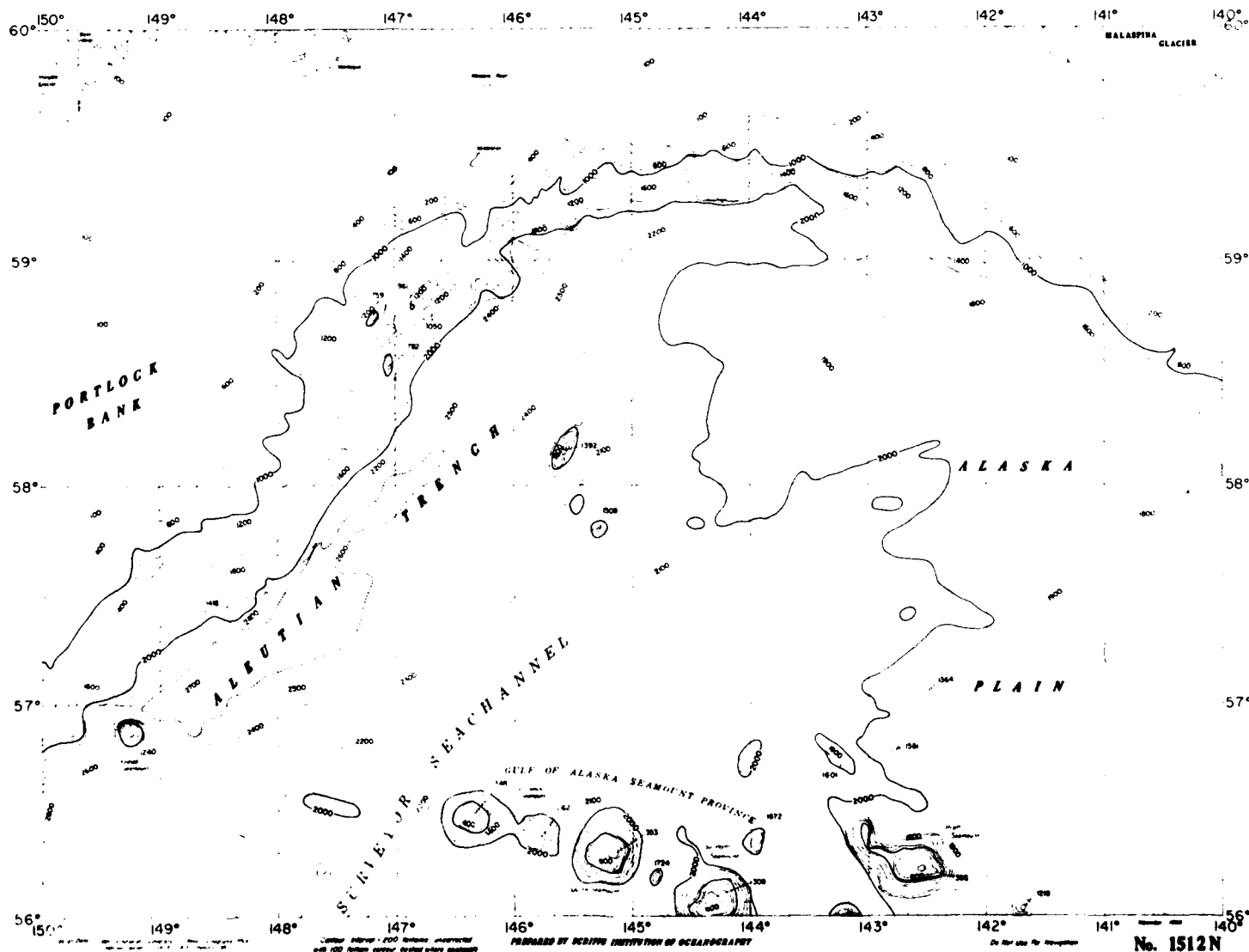


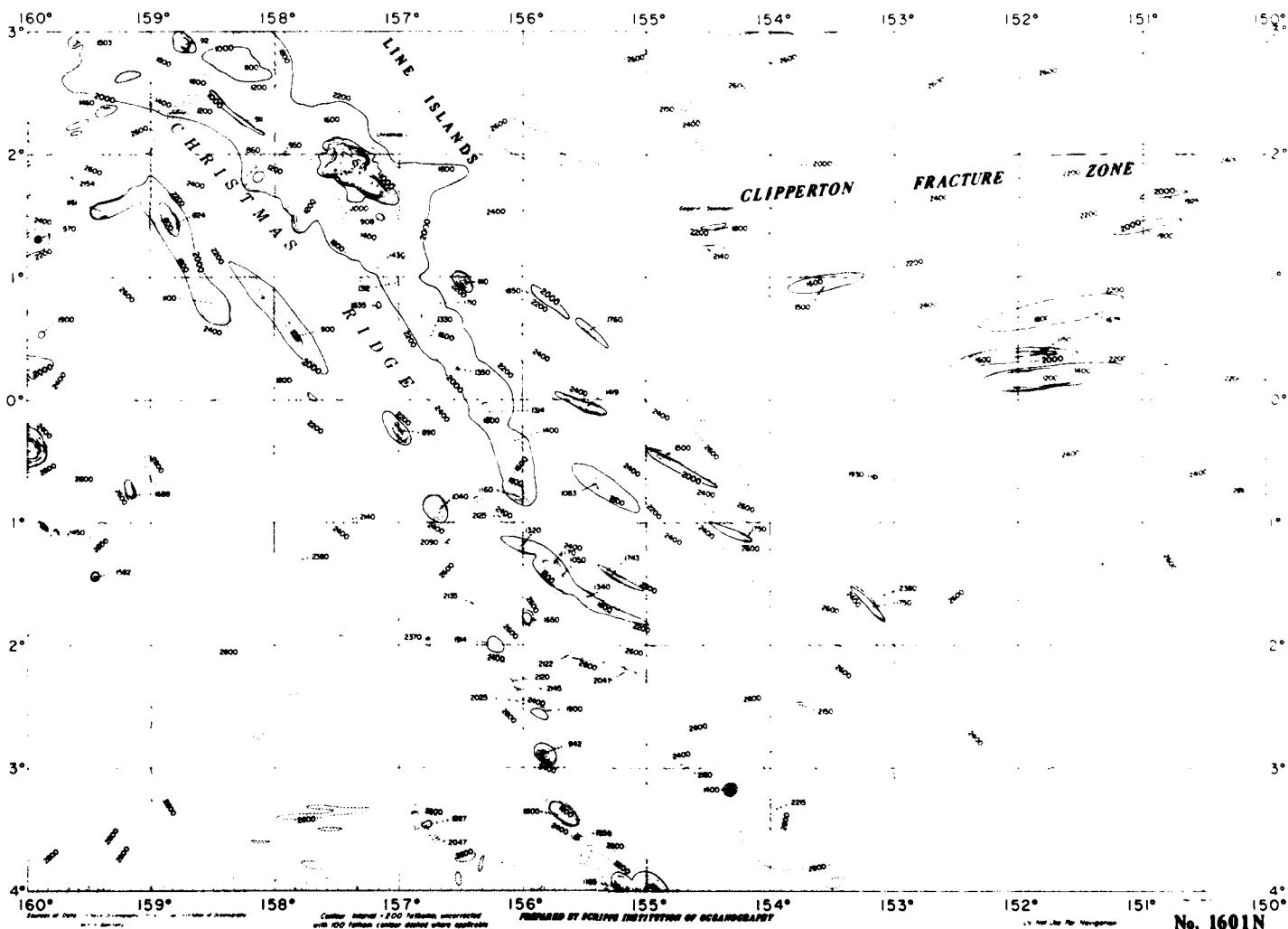


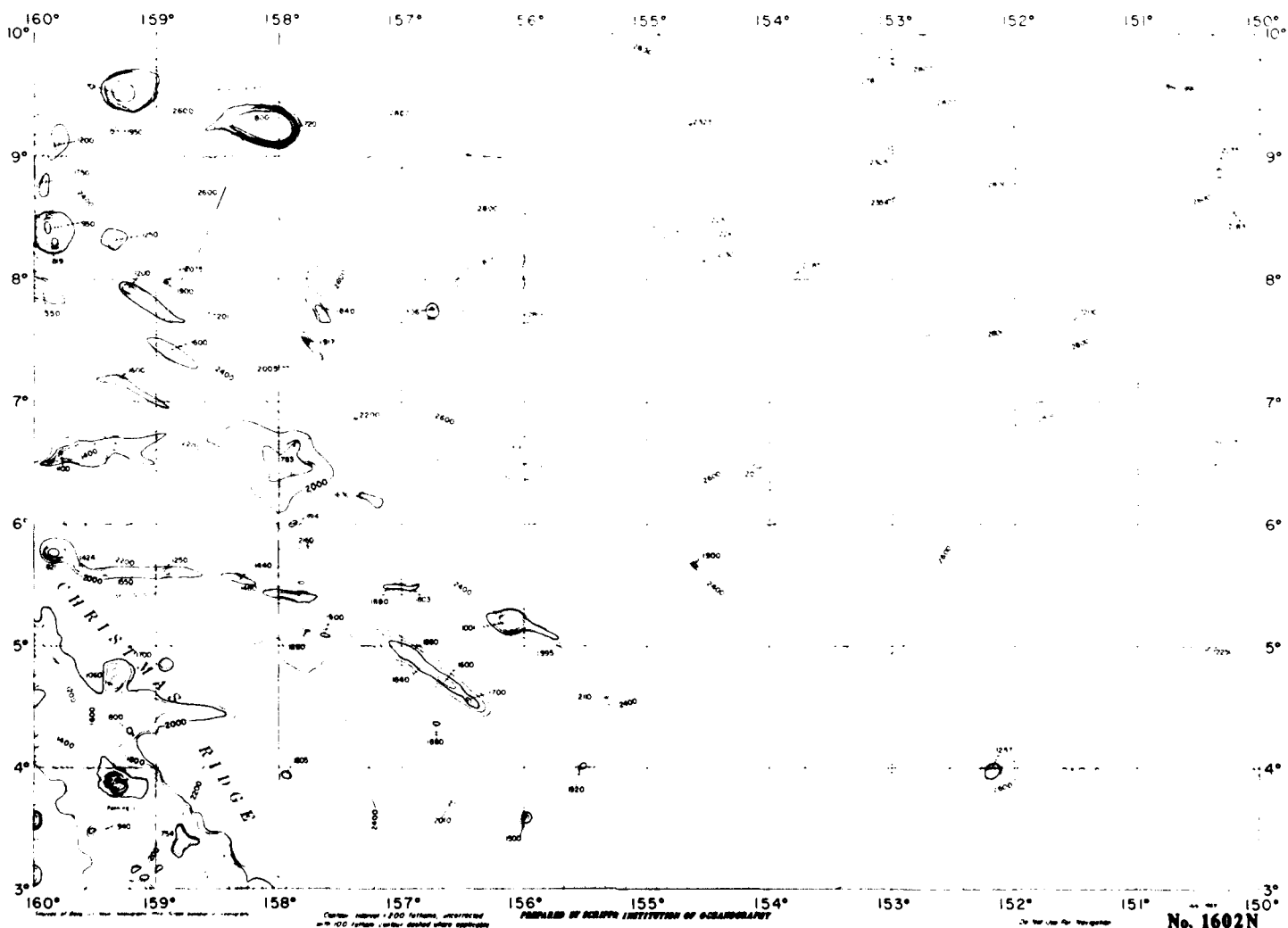
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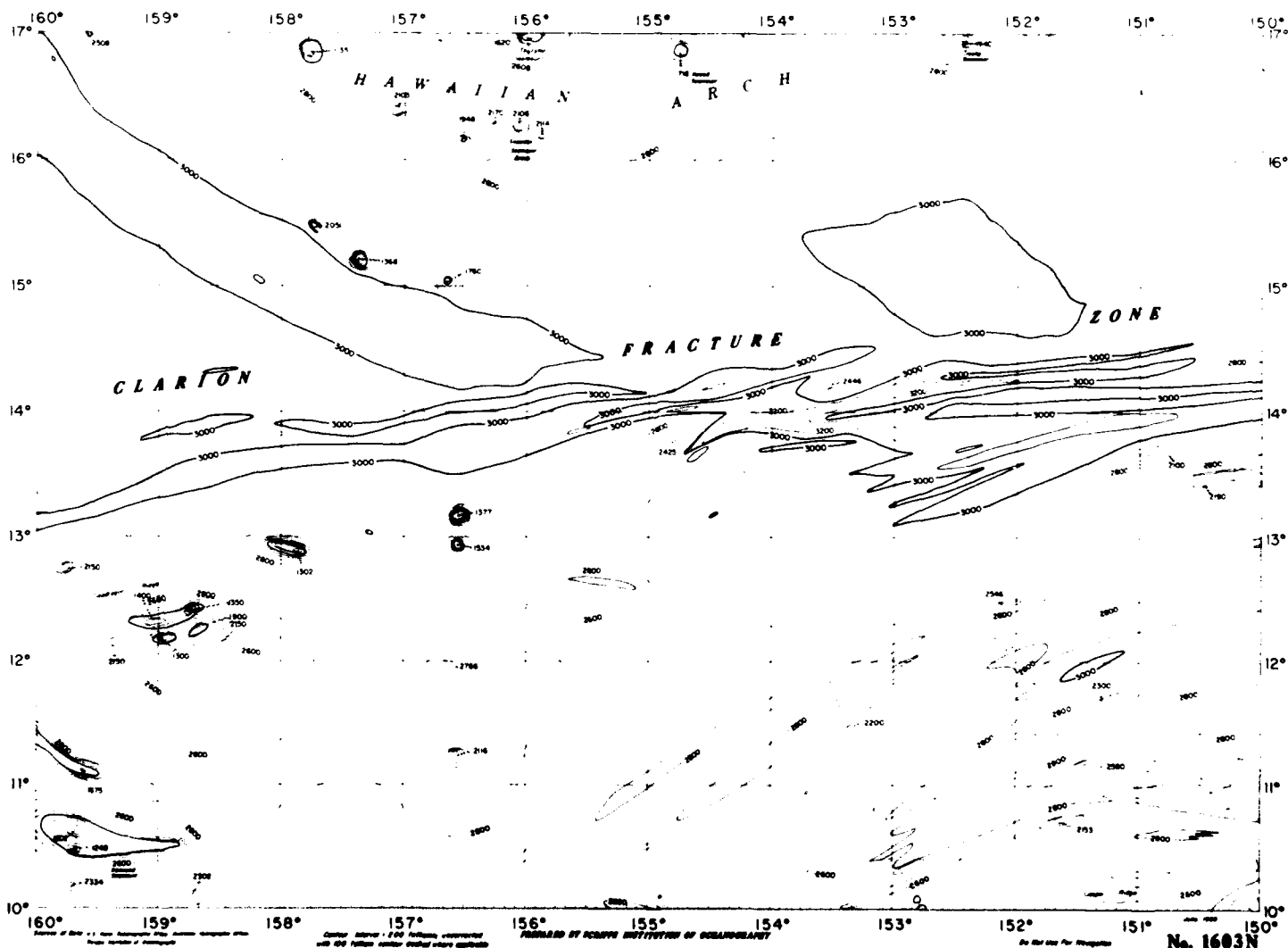


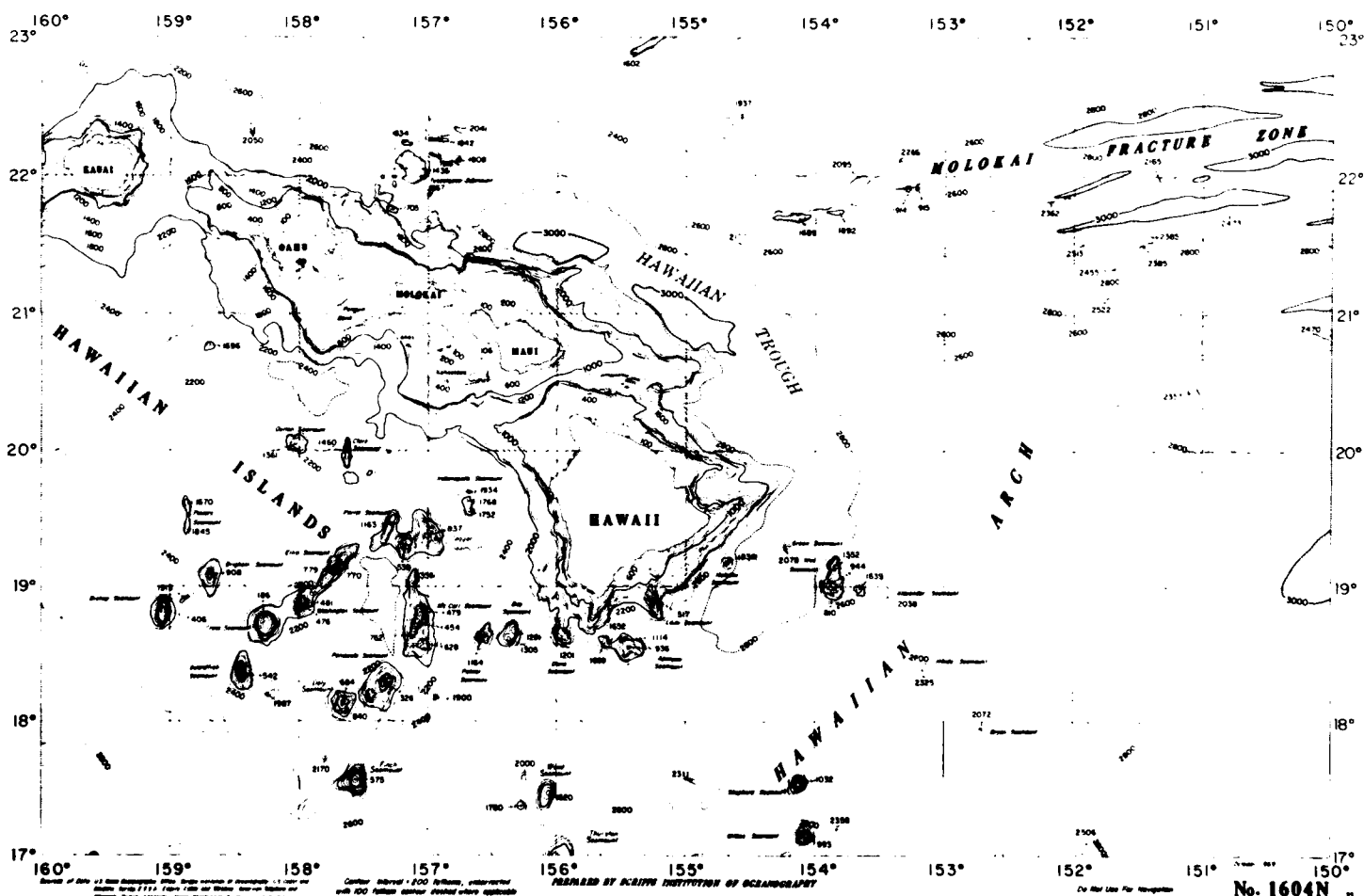












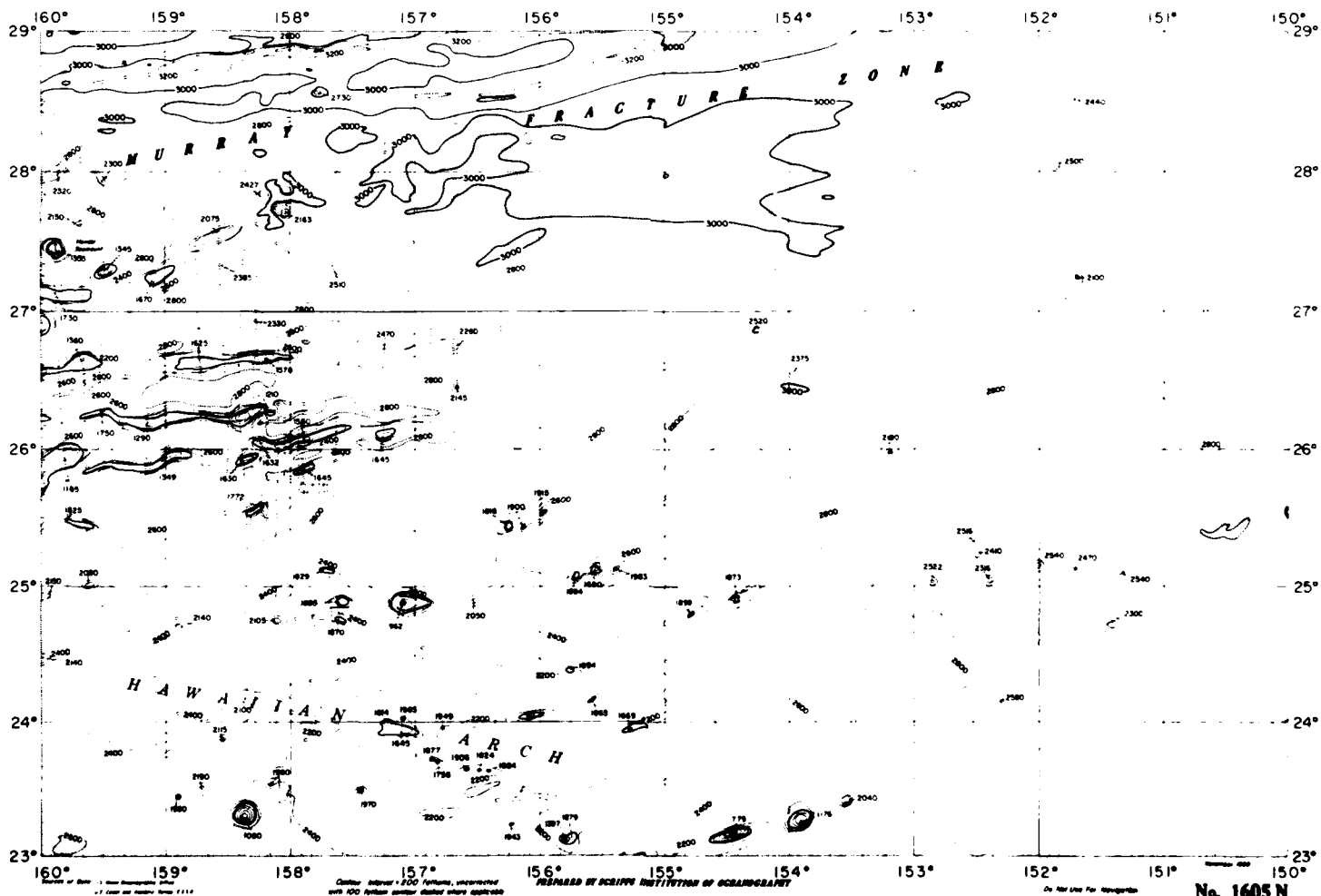
Source of data: U.S. Navy Hydrographic Office, Hydrographic Survey of the Hawaiian Islands, 1911-1912. From 1:50,000 scale, reduced to 1:100,000 scale. Depth soundings in fathoms. Contour interval 100 fathoms. Shaded areas indicate depths of 100 fathoms or less.

Cartographer: Hydrographic Office, U.S. Navy. Printed by the Government Printing Office, Washington, D.C.

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No. 1604N

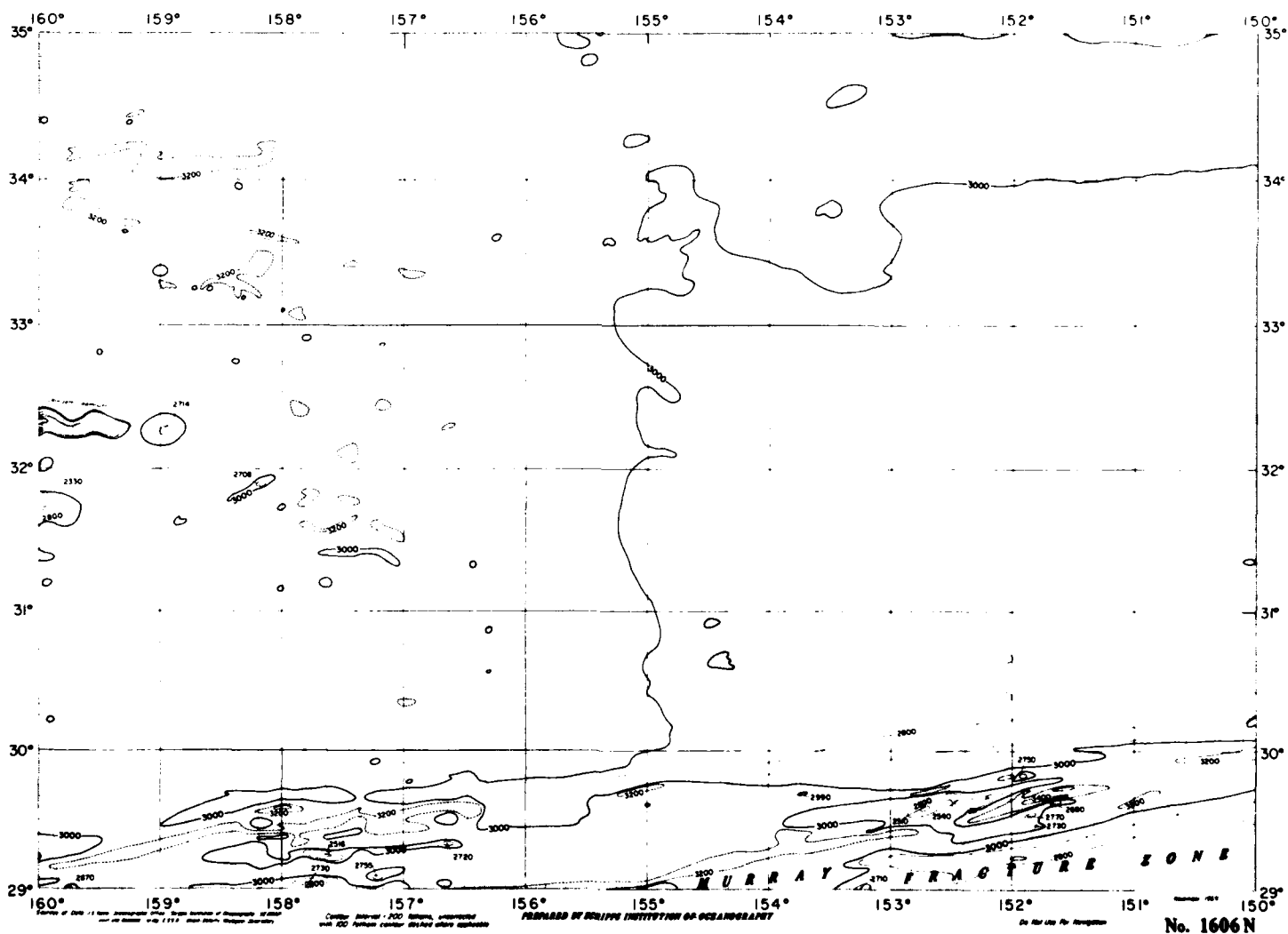


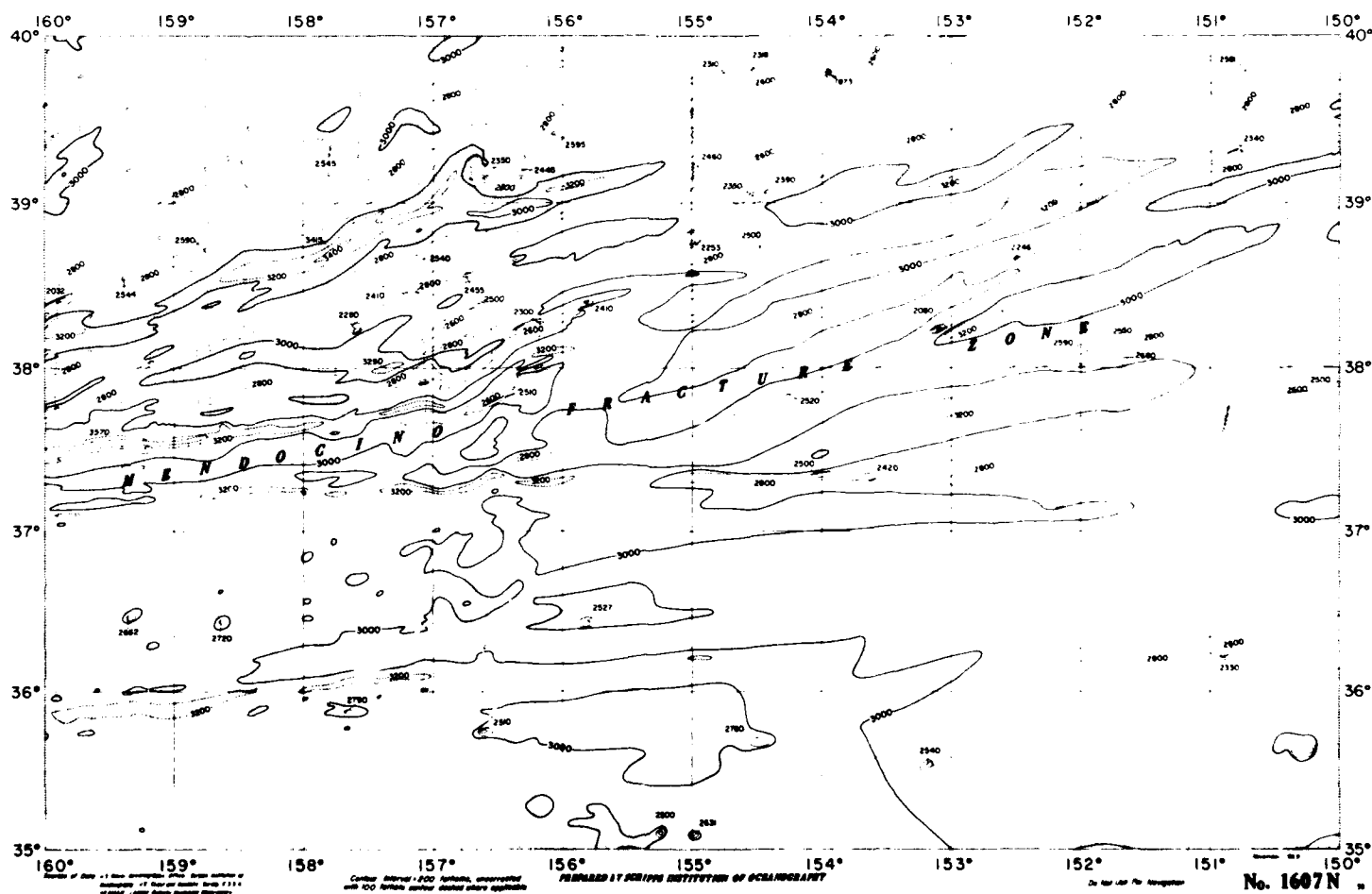
Contour Interval = 200 Fathoms, uncorrected  
with 100 Fathoms contour shaded where applicable

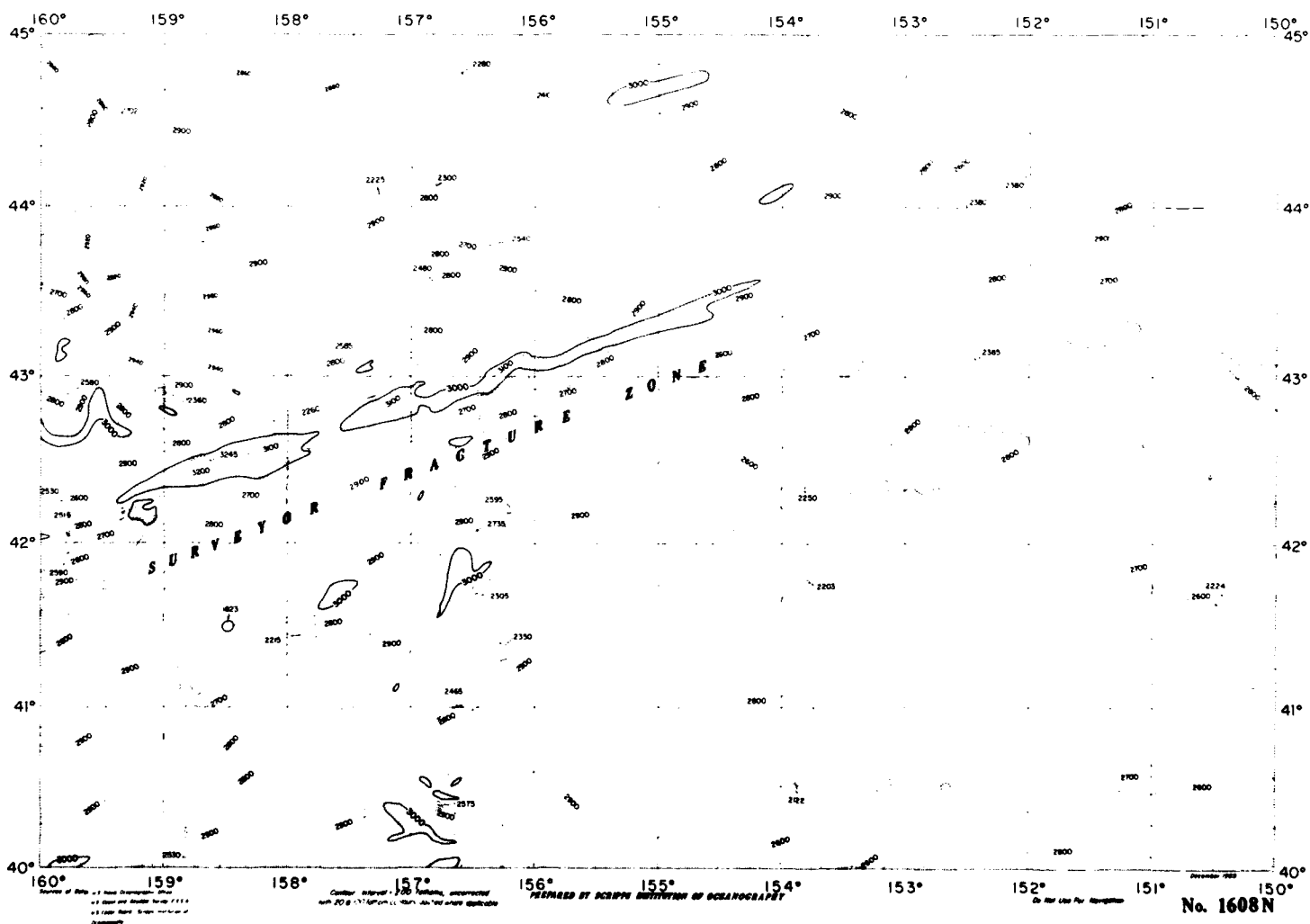
PREPARED BY SCRIPPS INSTITUTION OF OCEANOGRAPHY

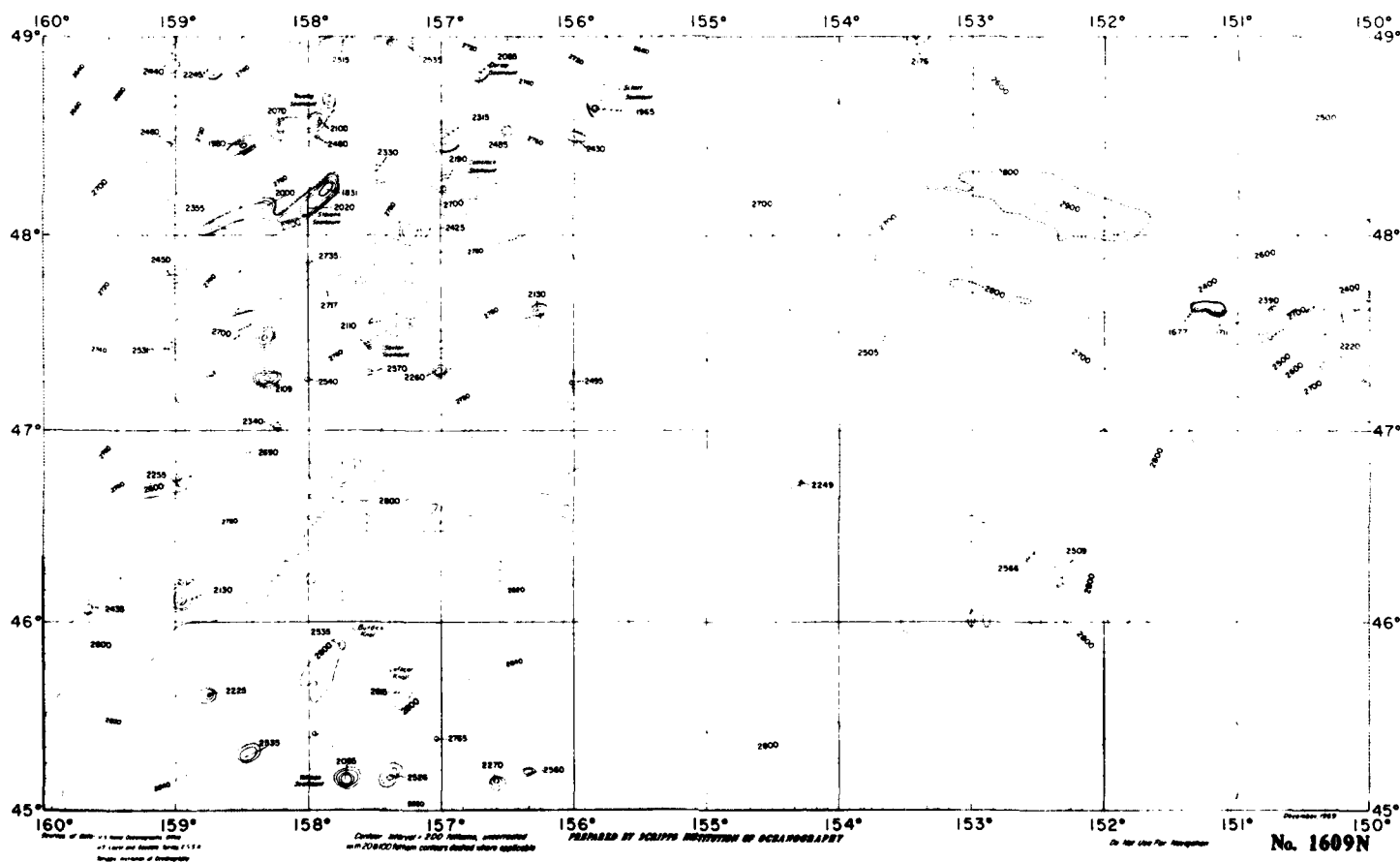
On Not Used For Navigation

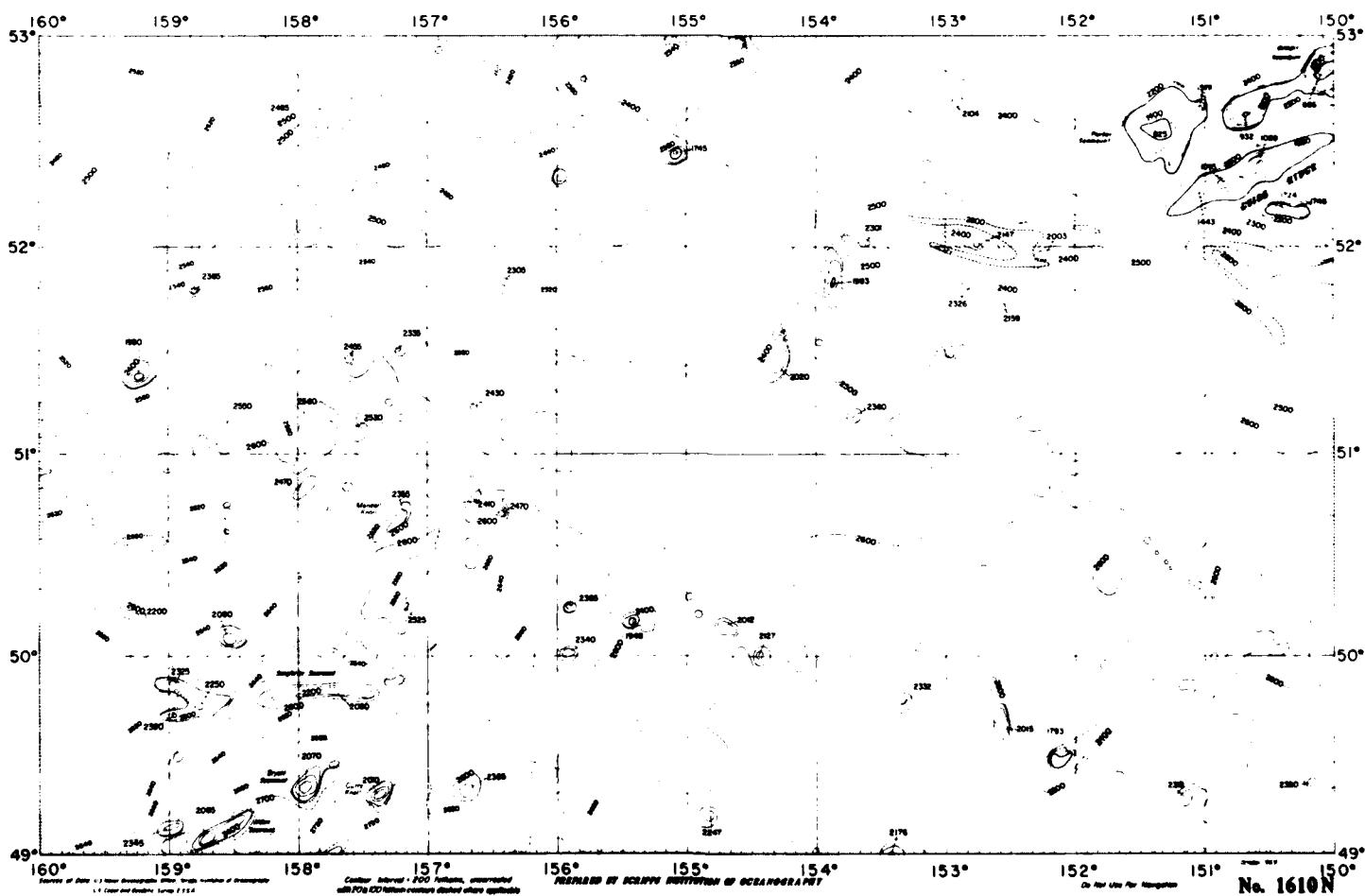
No. 1605 N

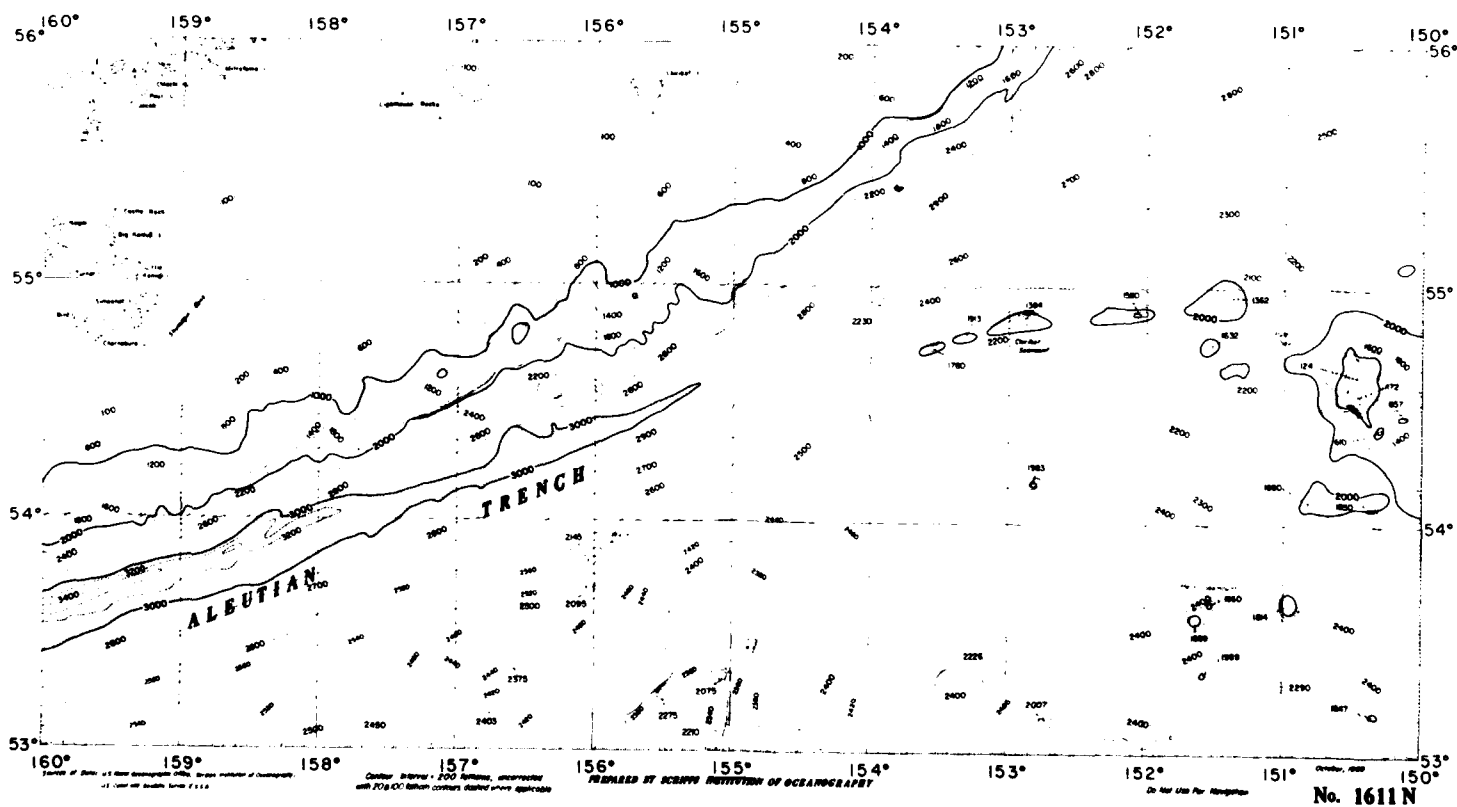


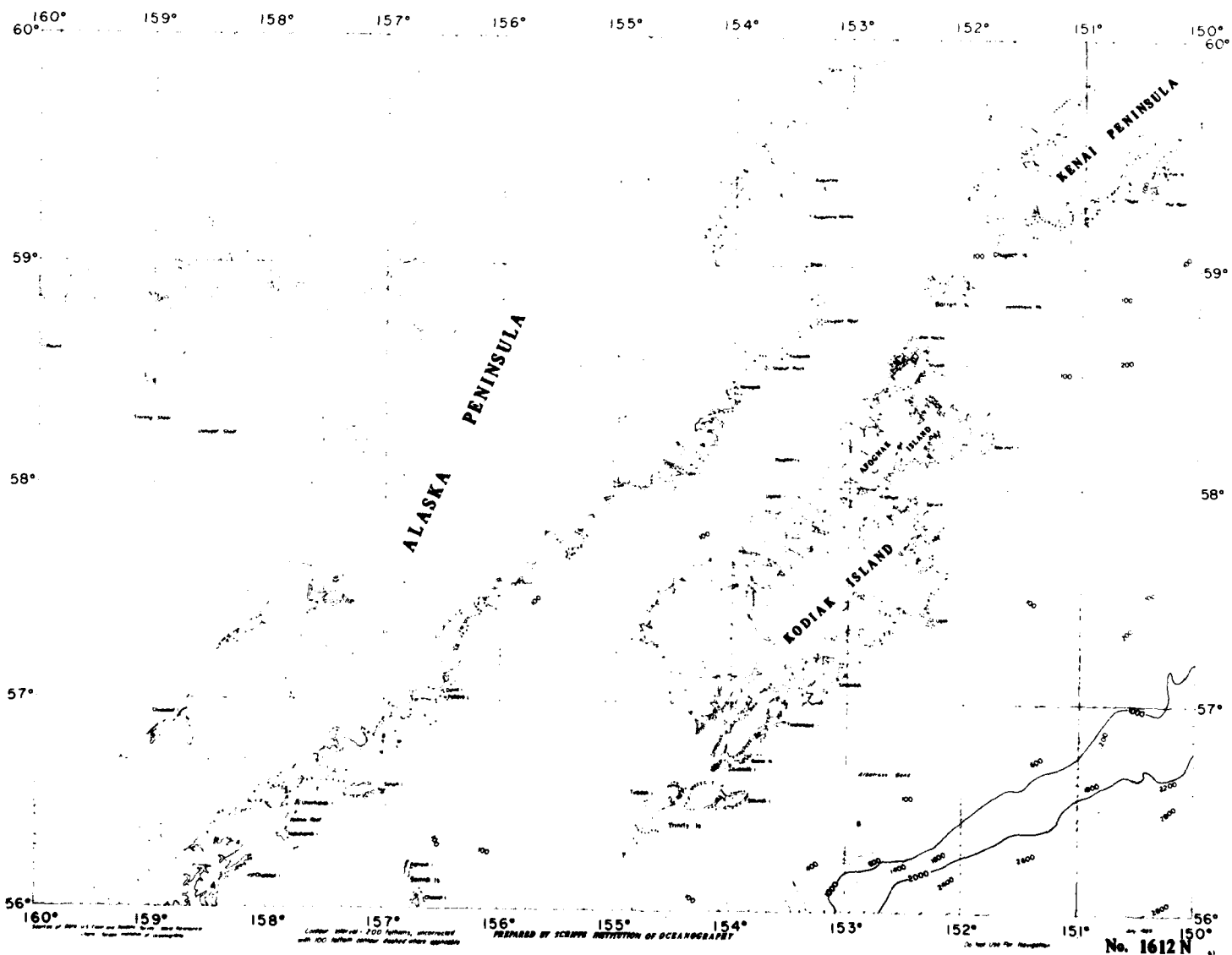


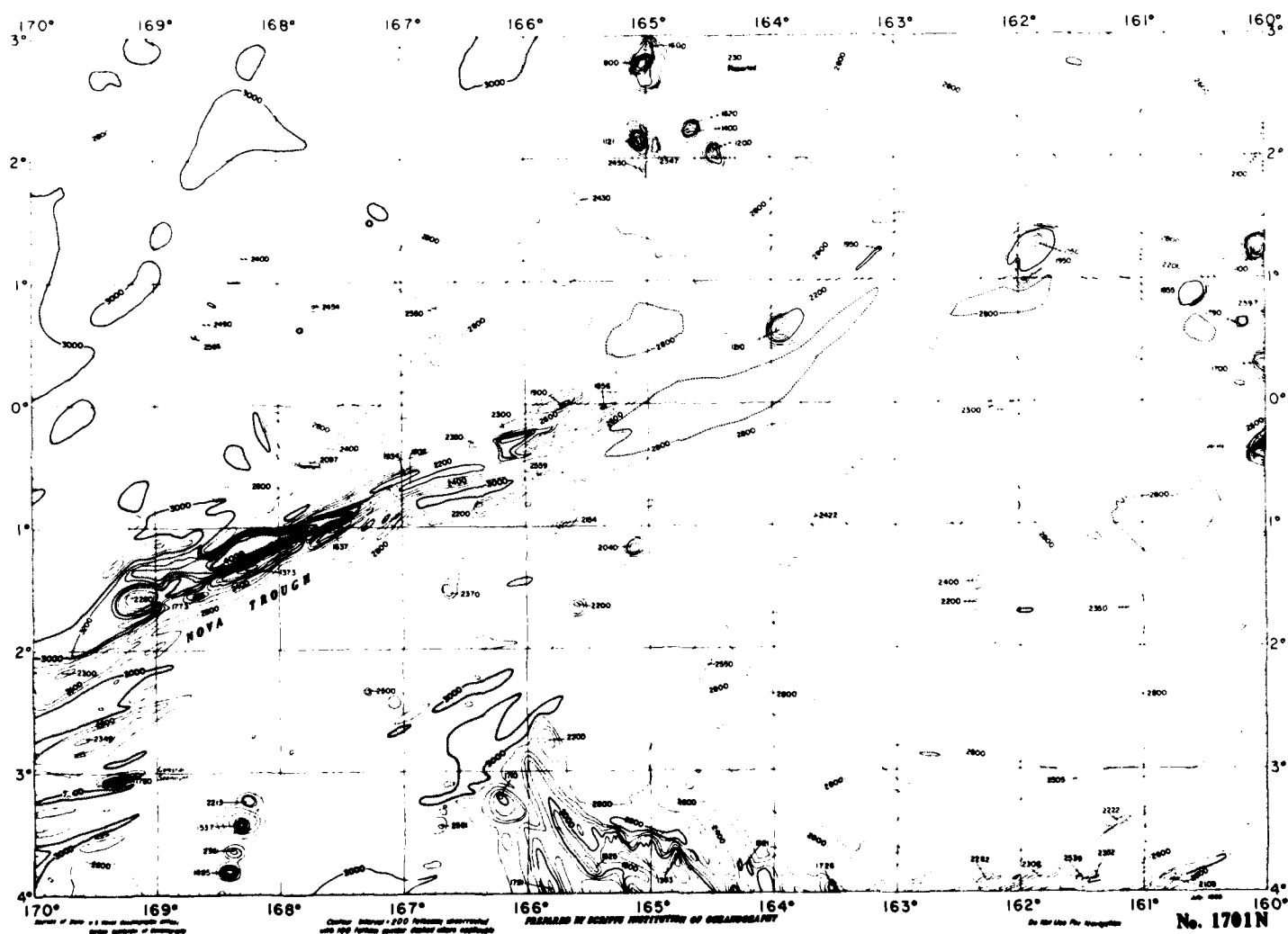


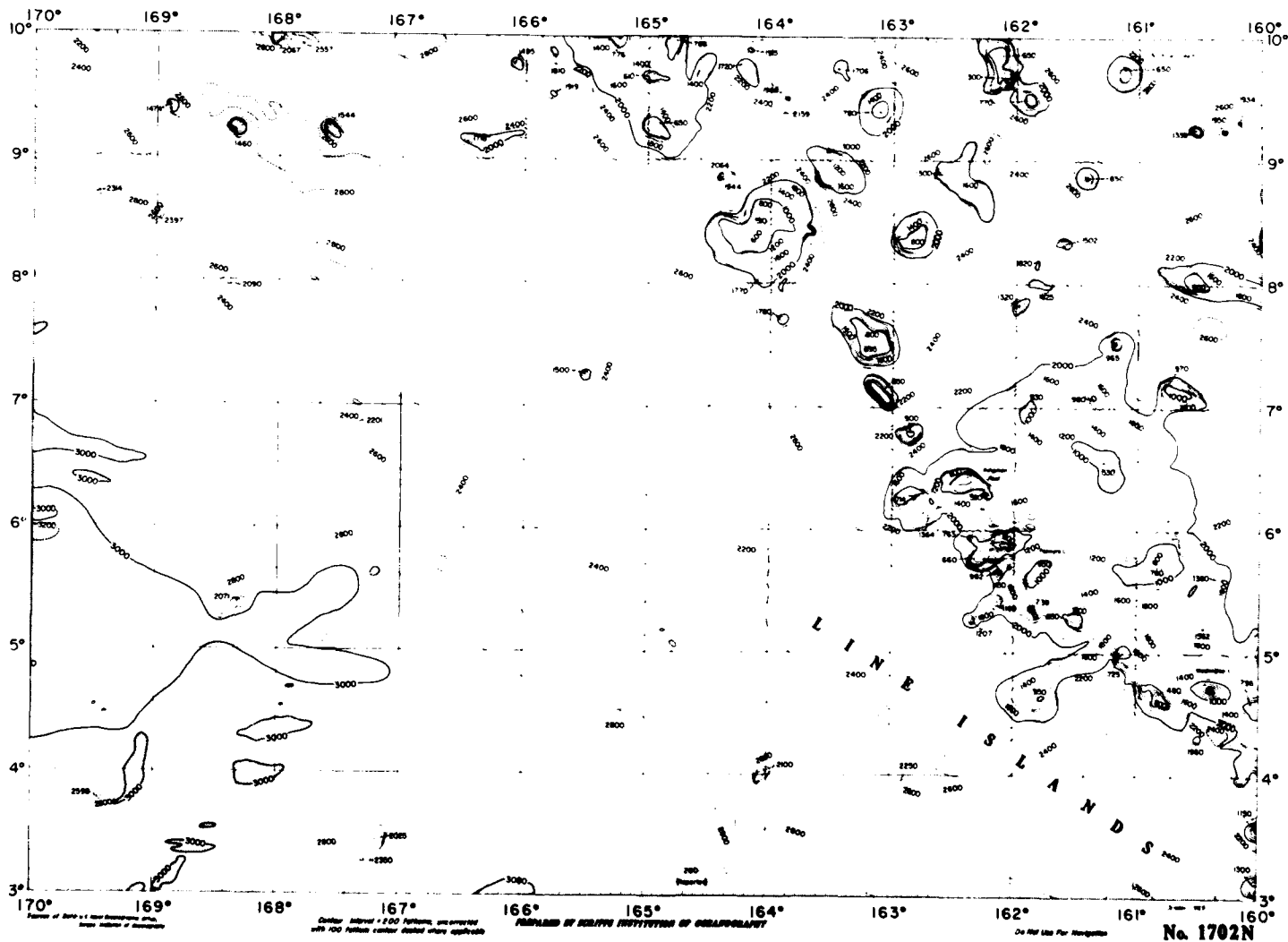


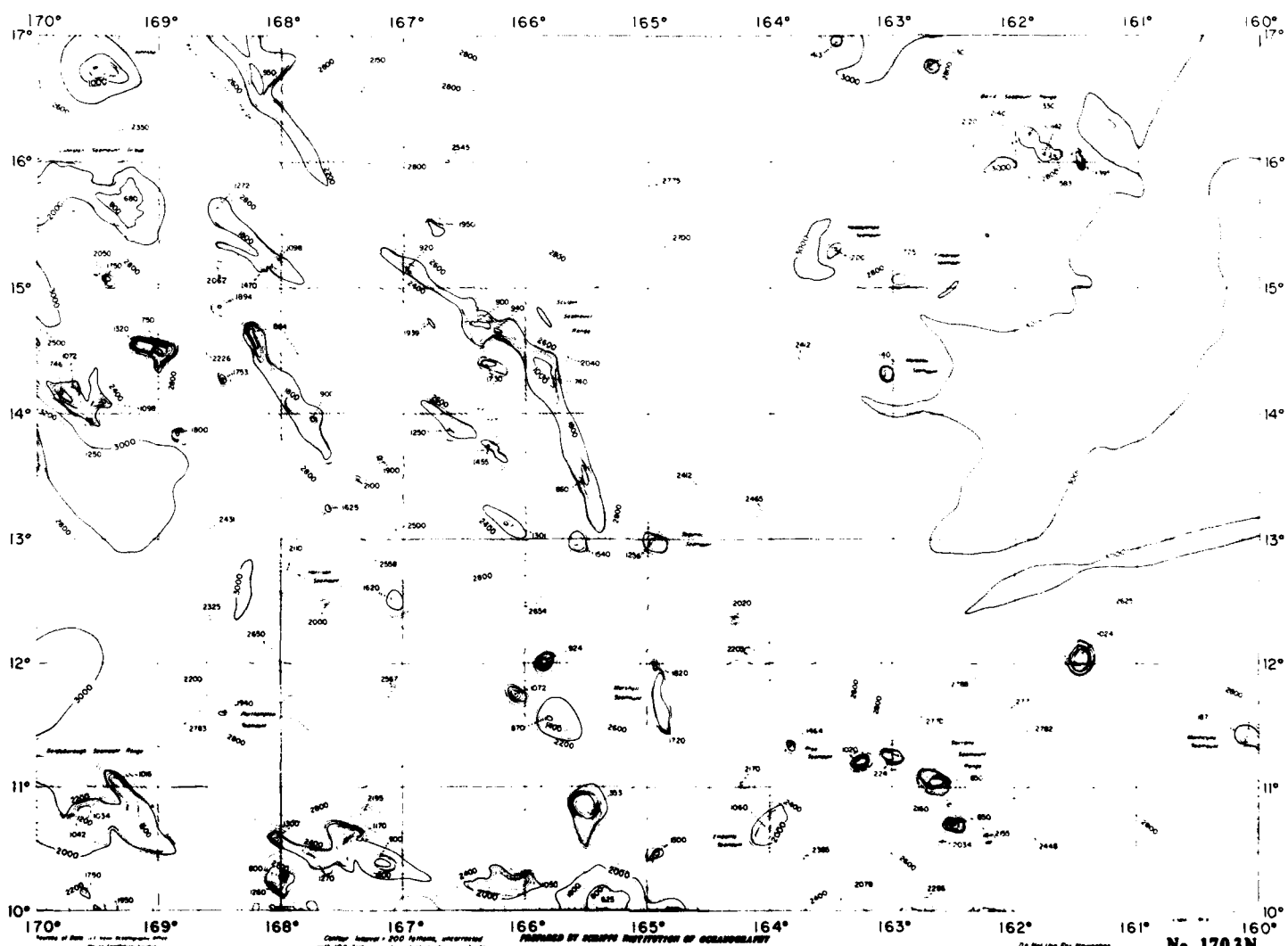


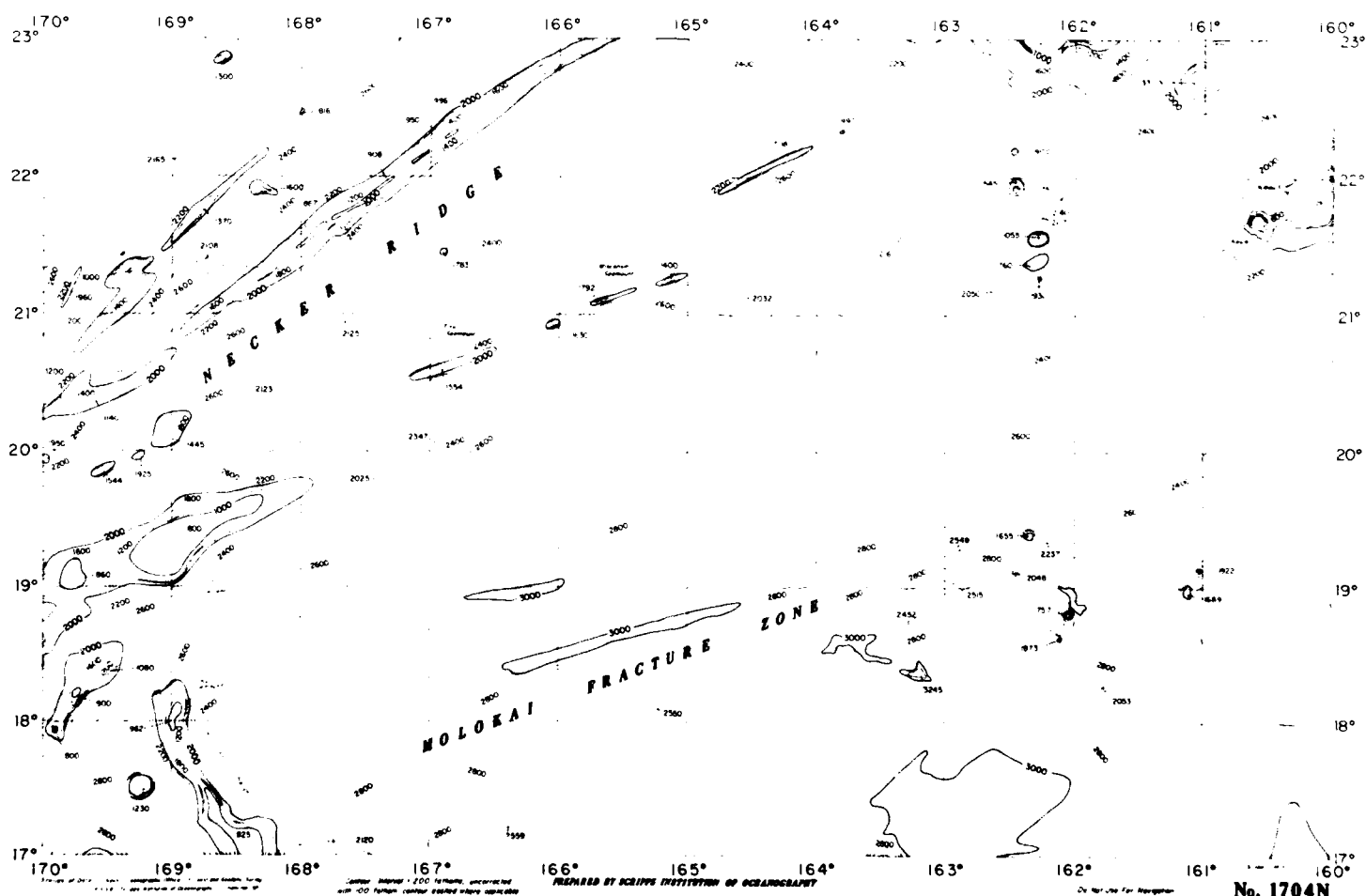




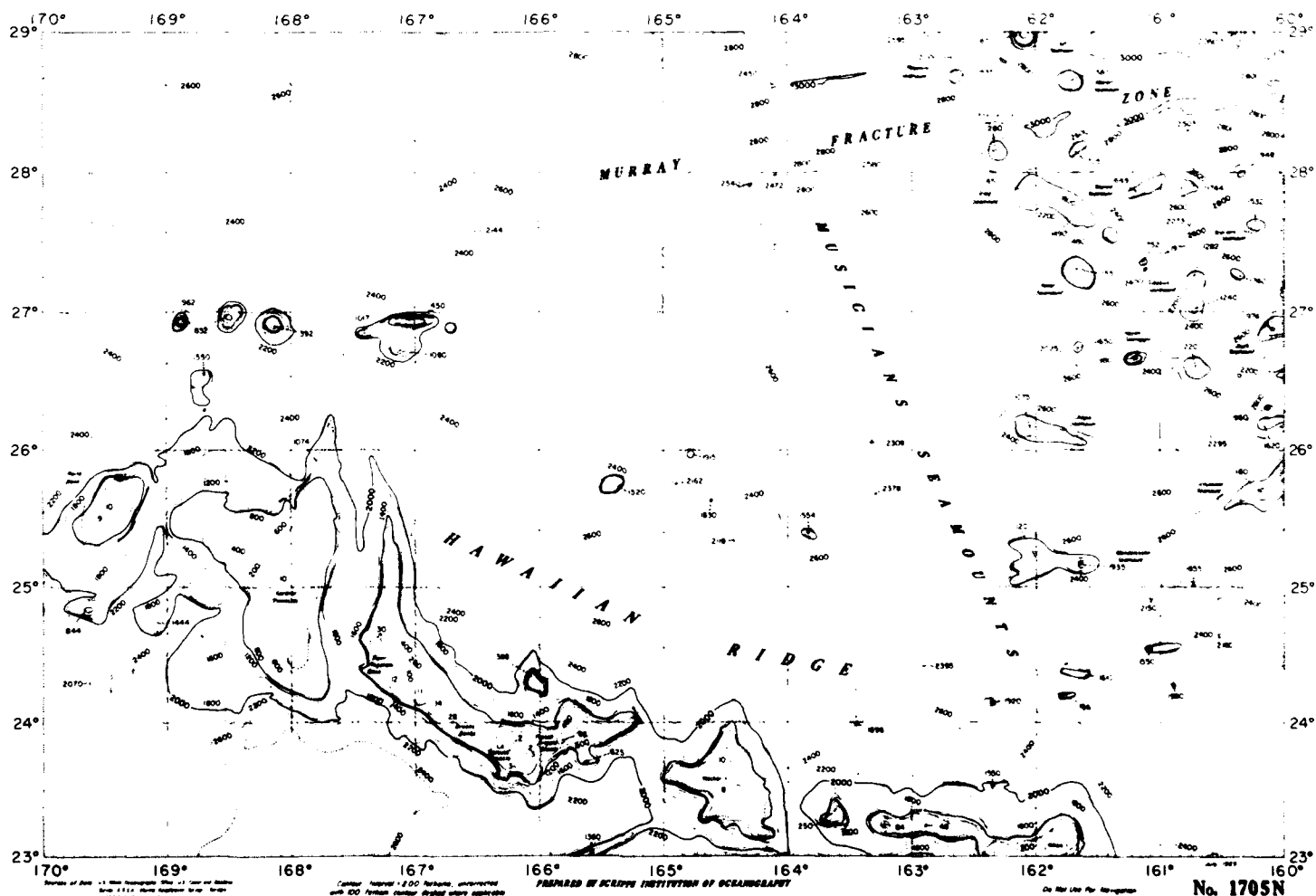


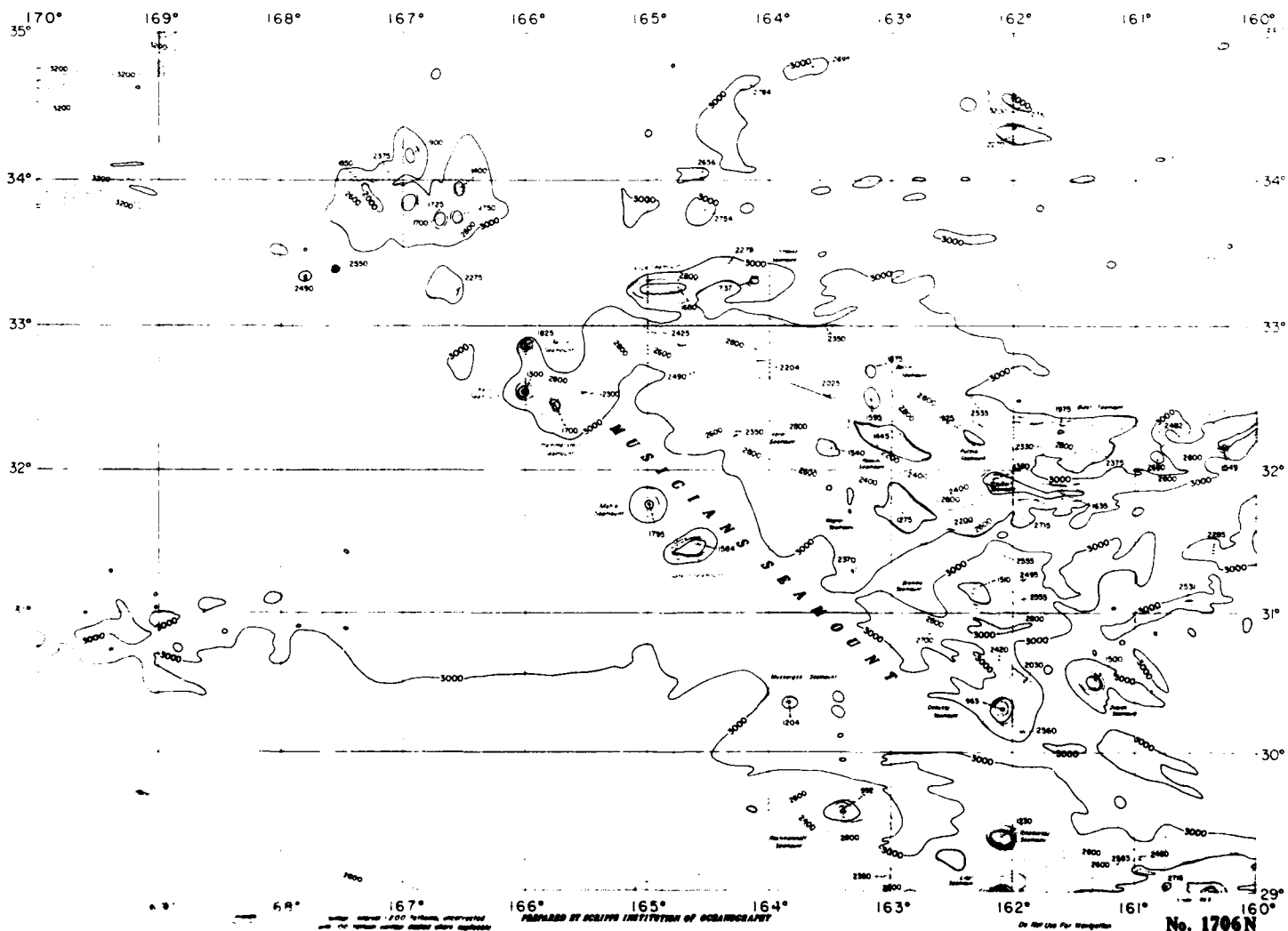


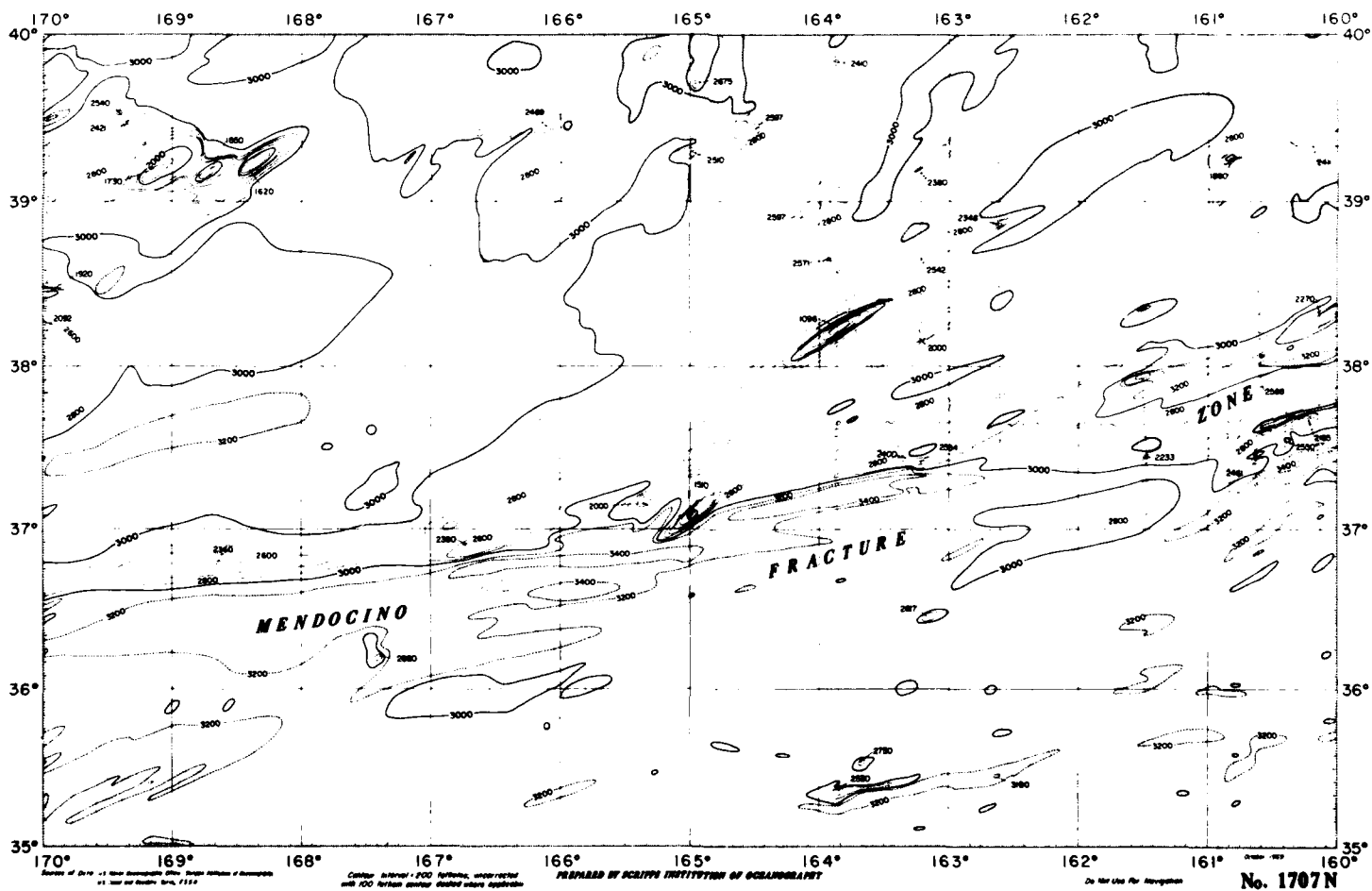


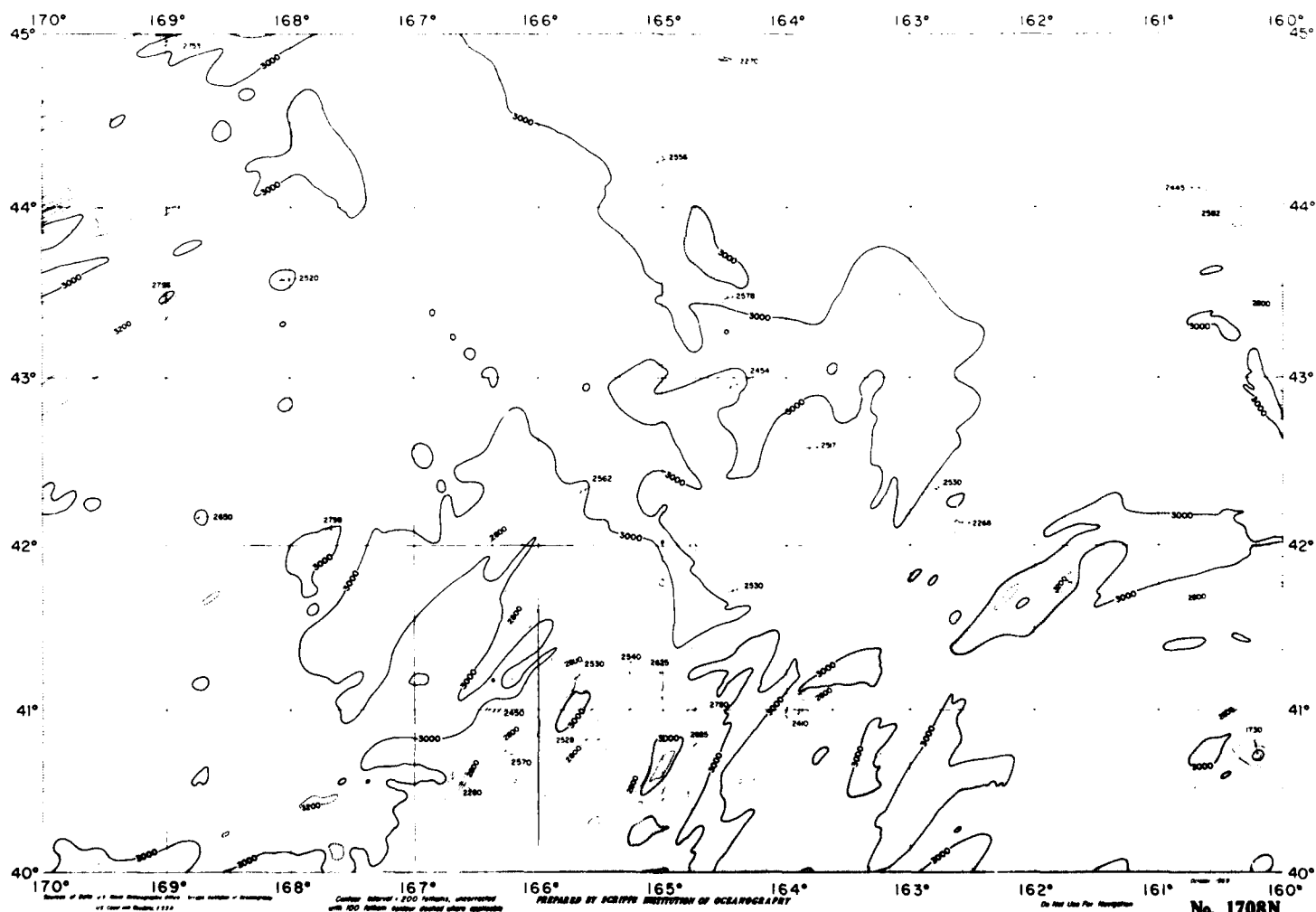


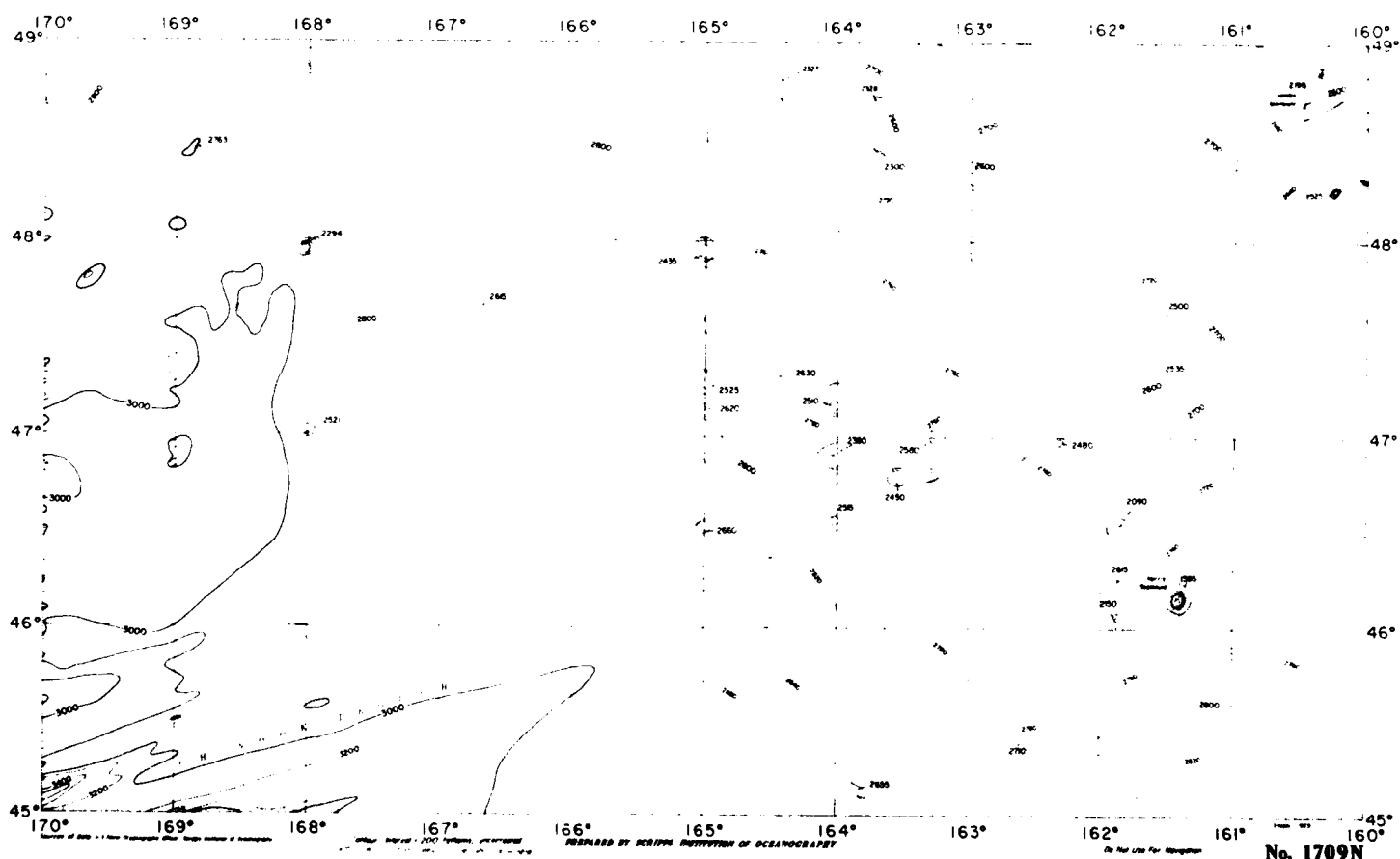
No. 1704N



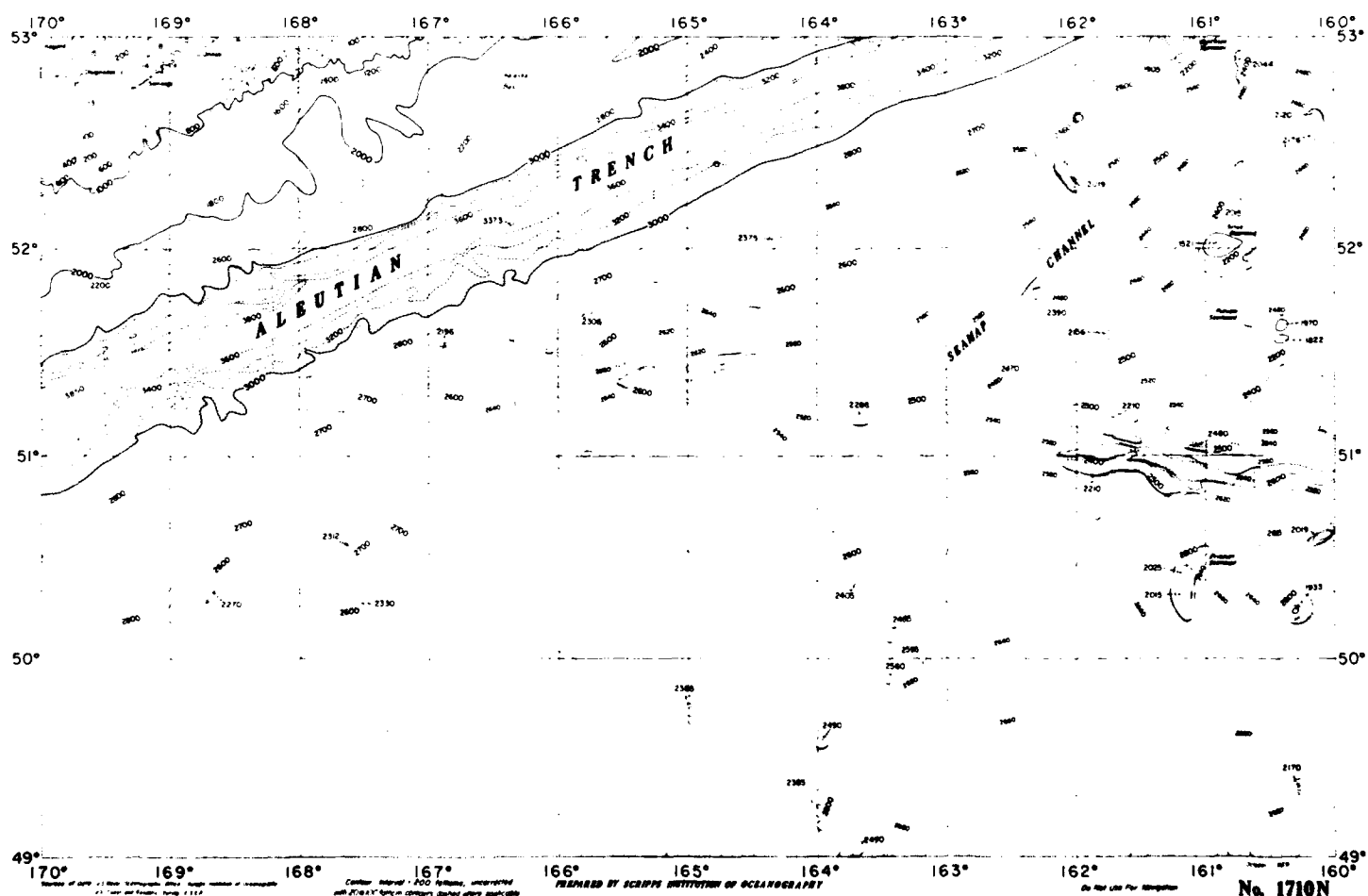


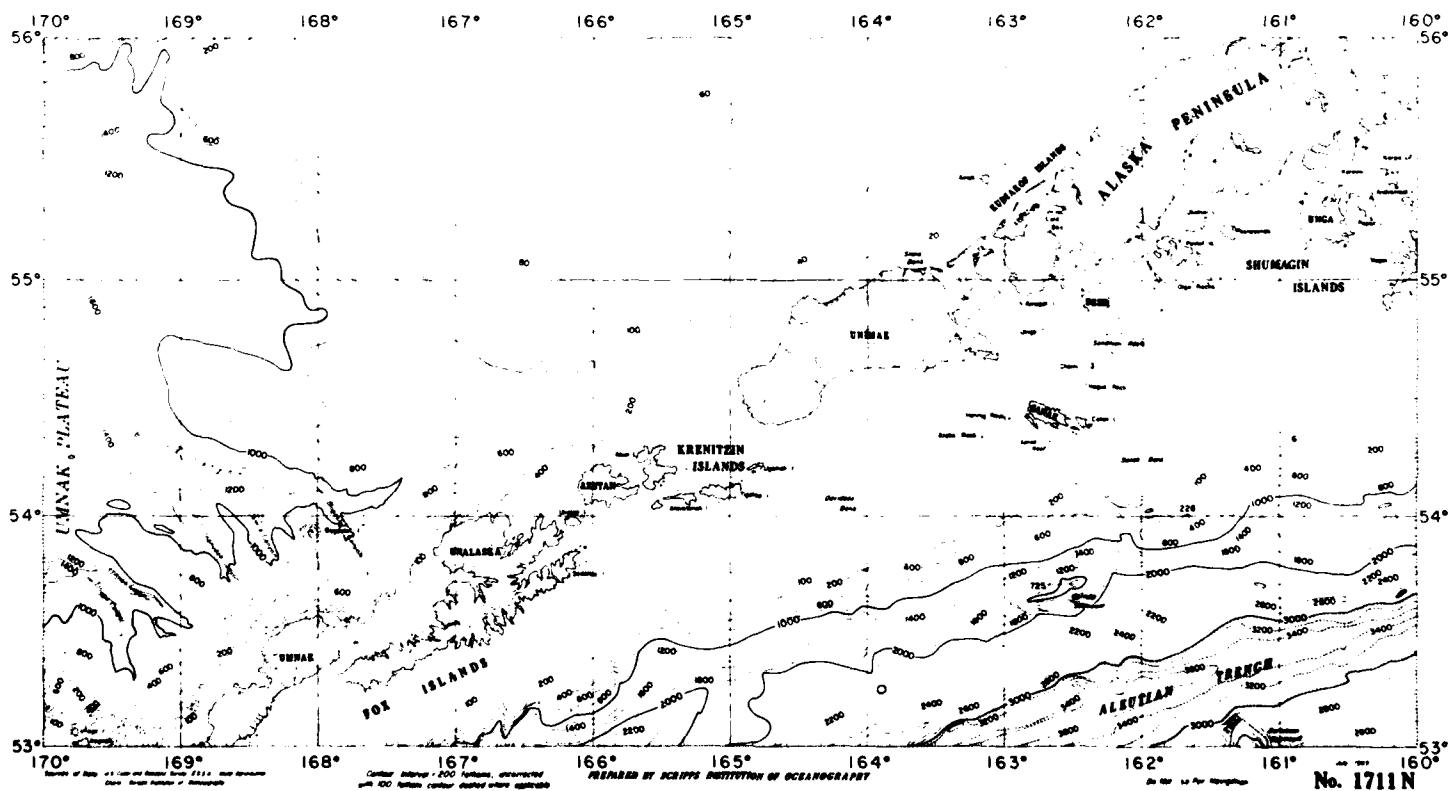


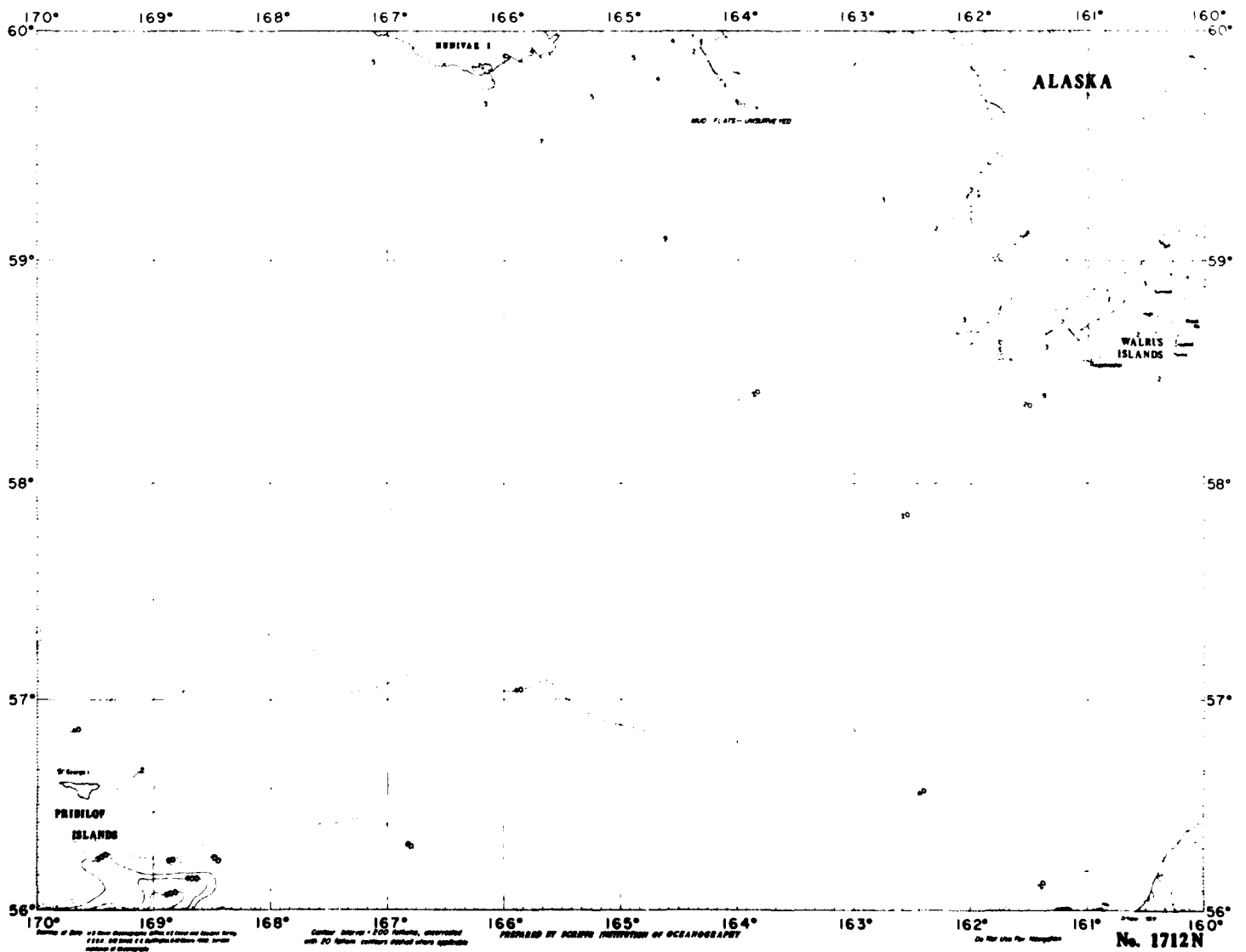


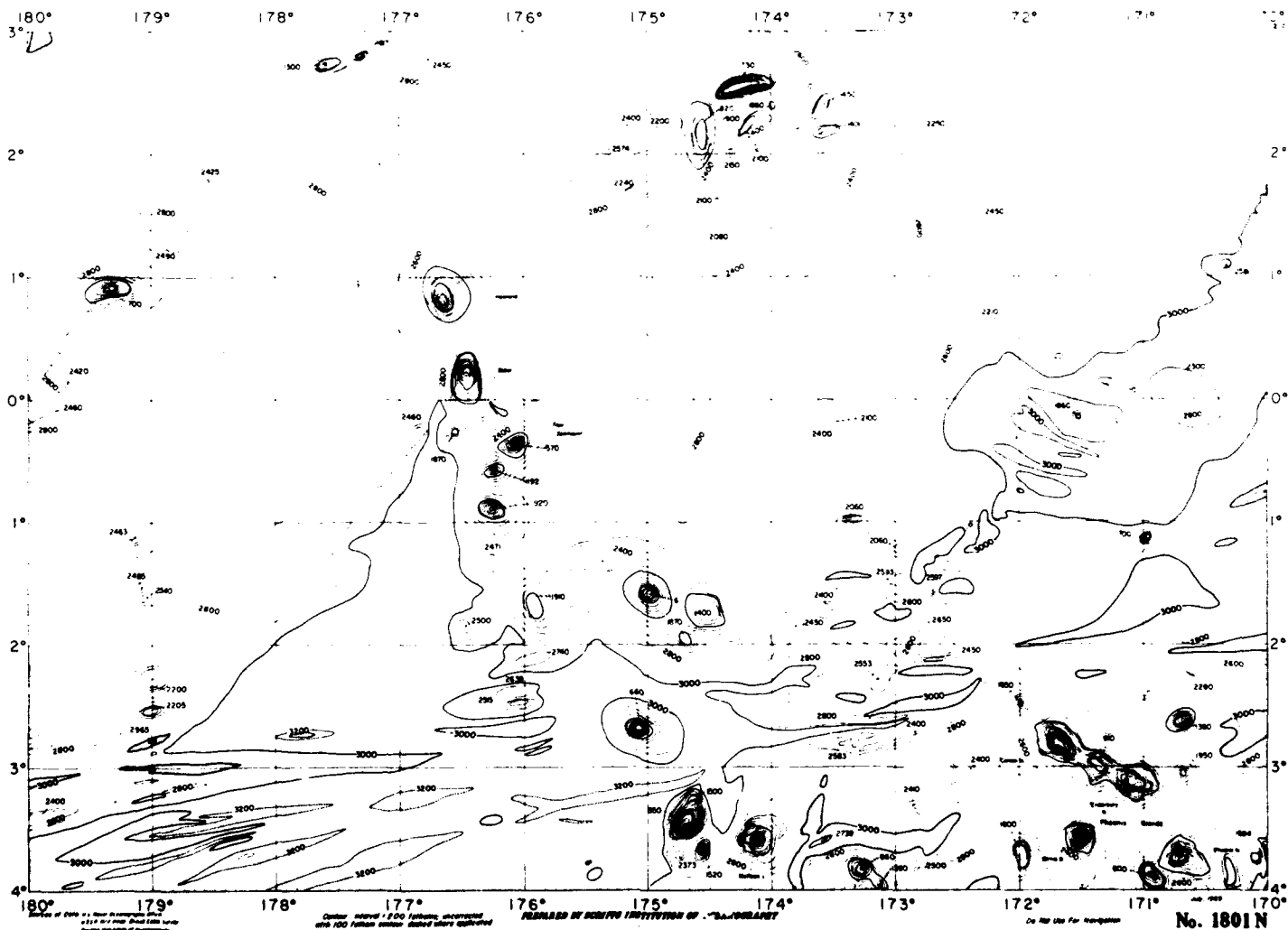


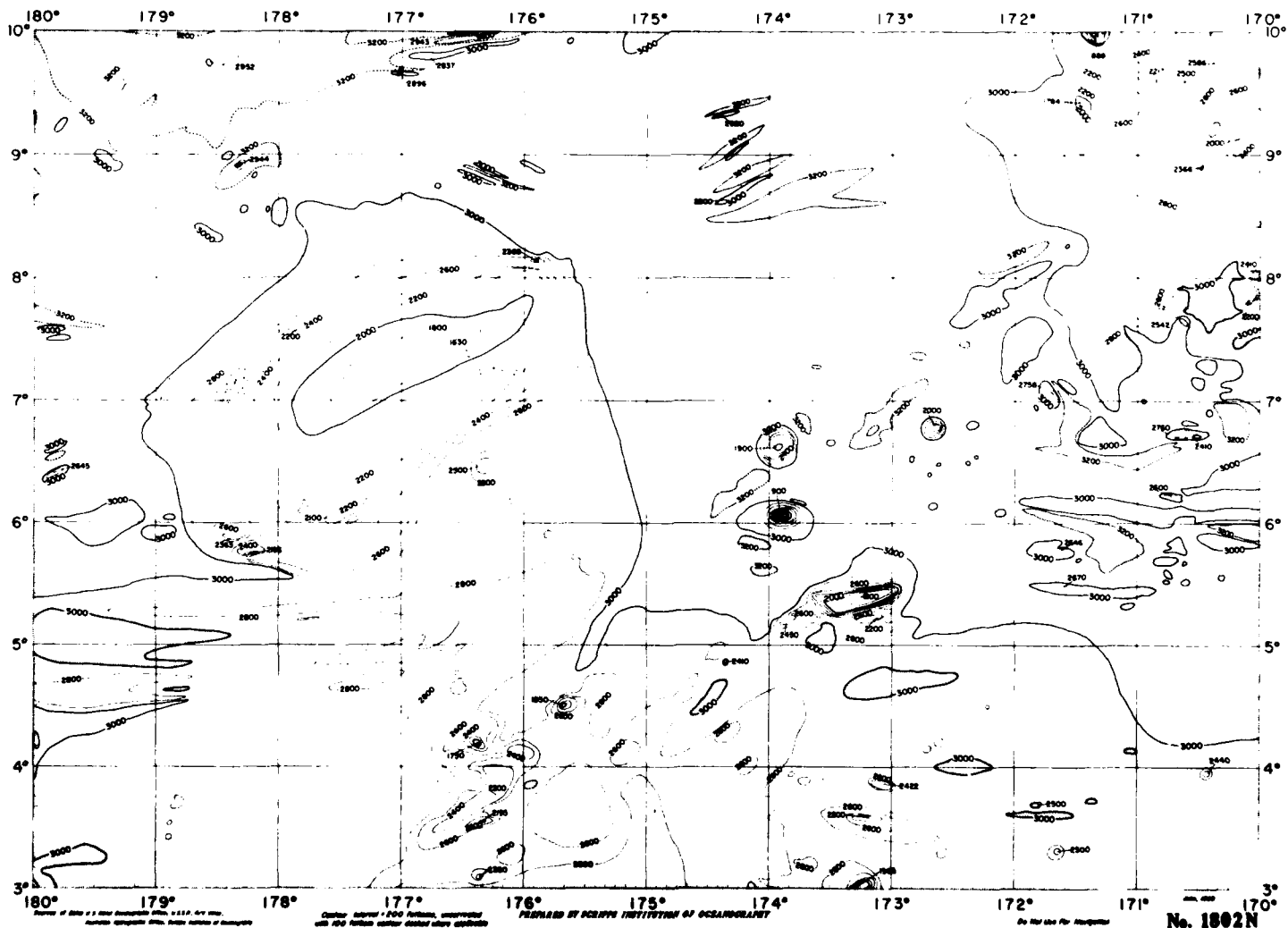
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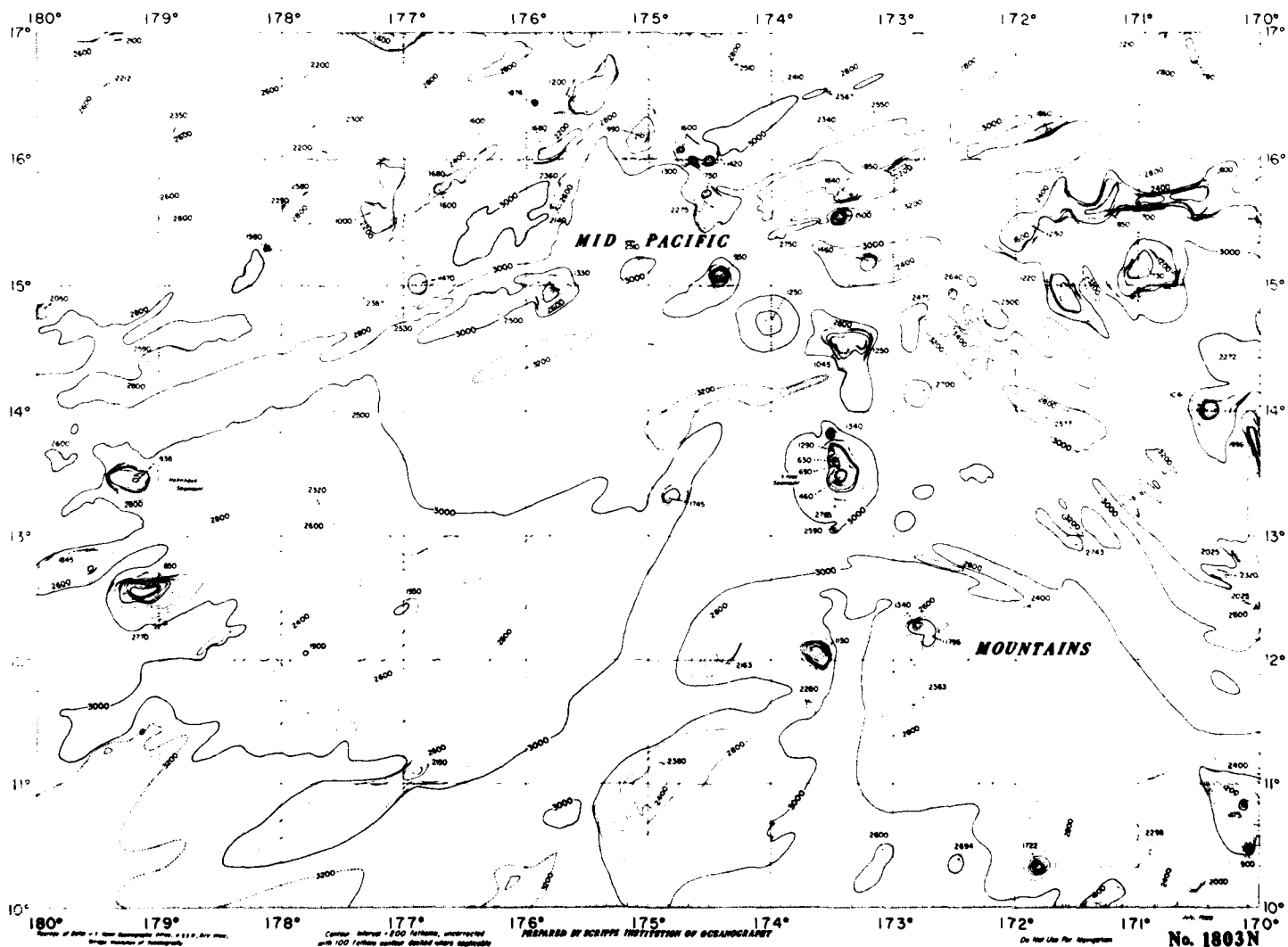


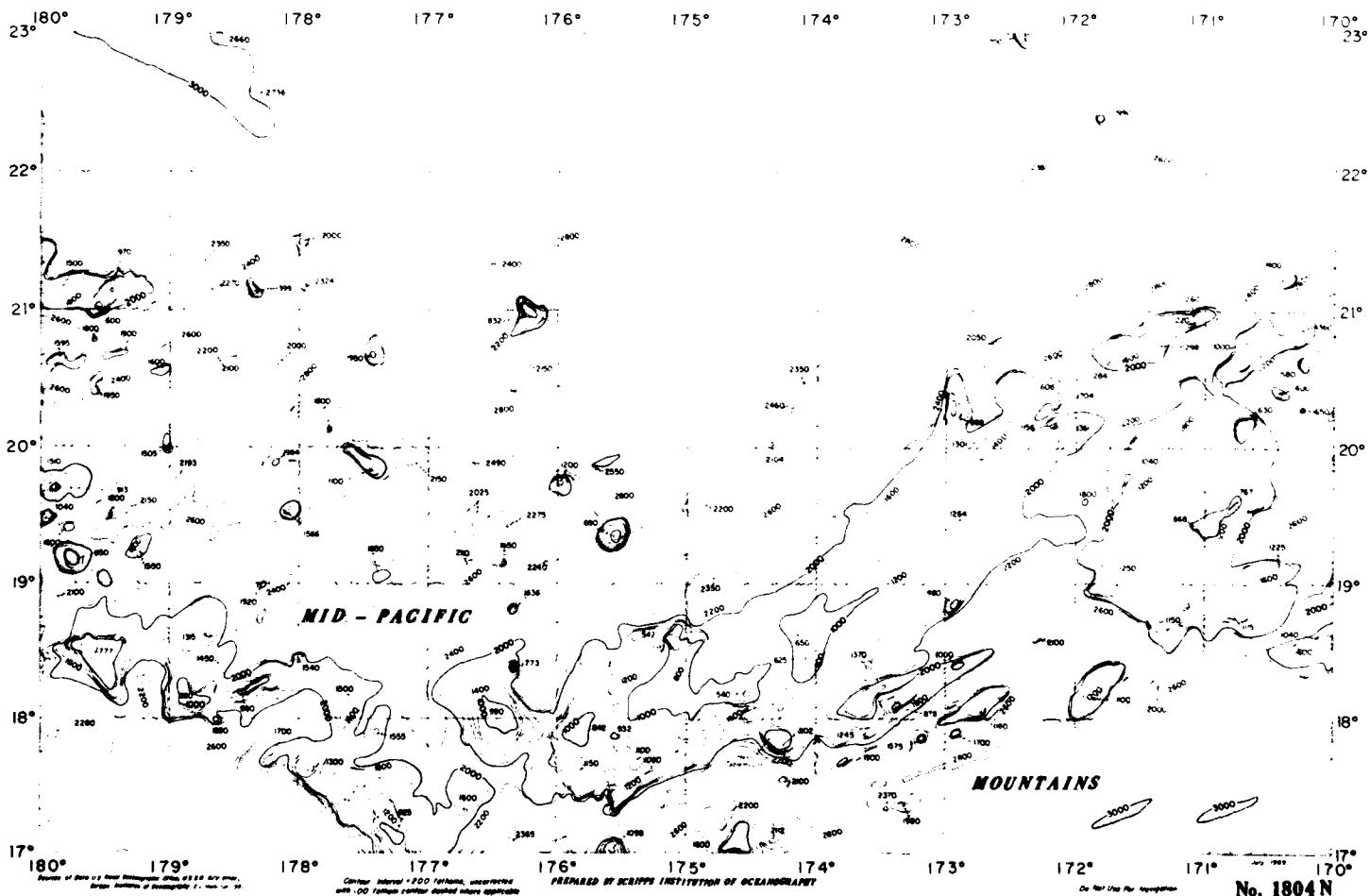


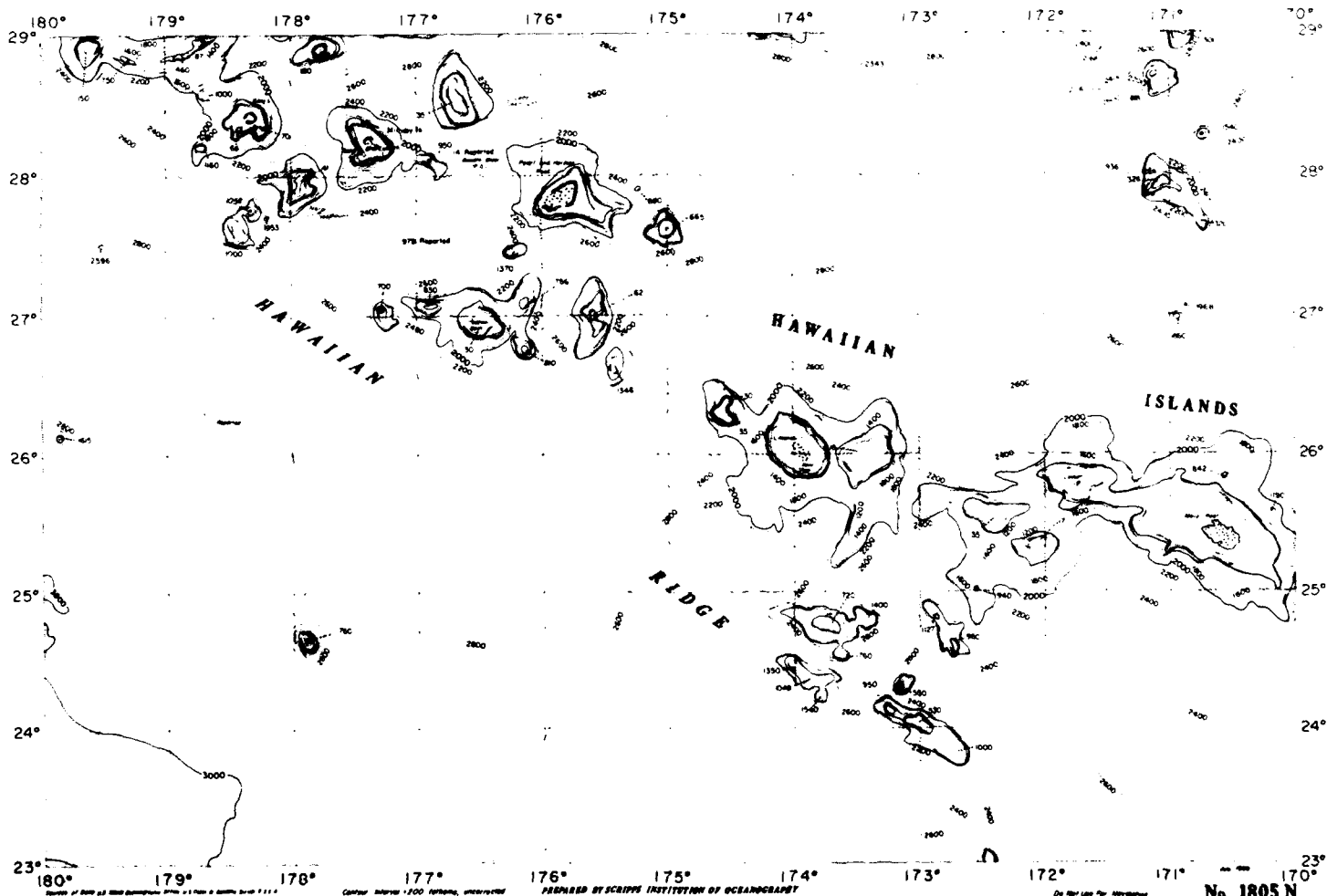












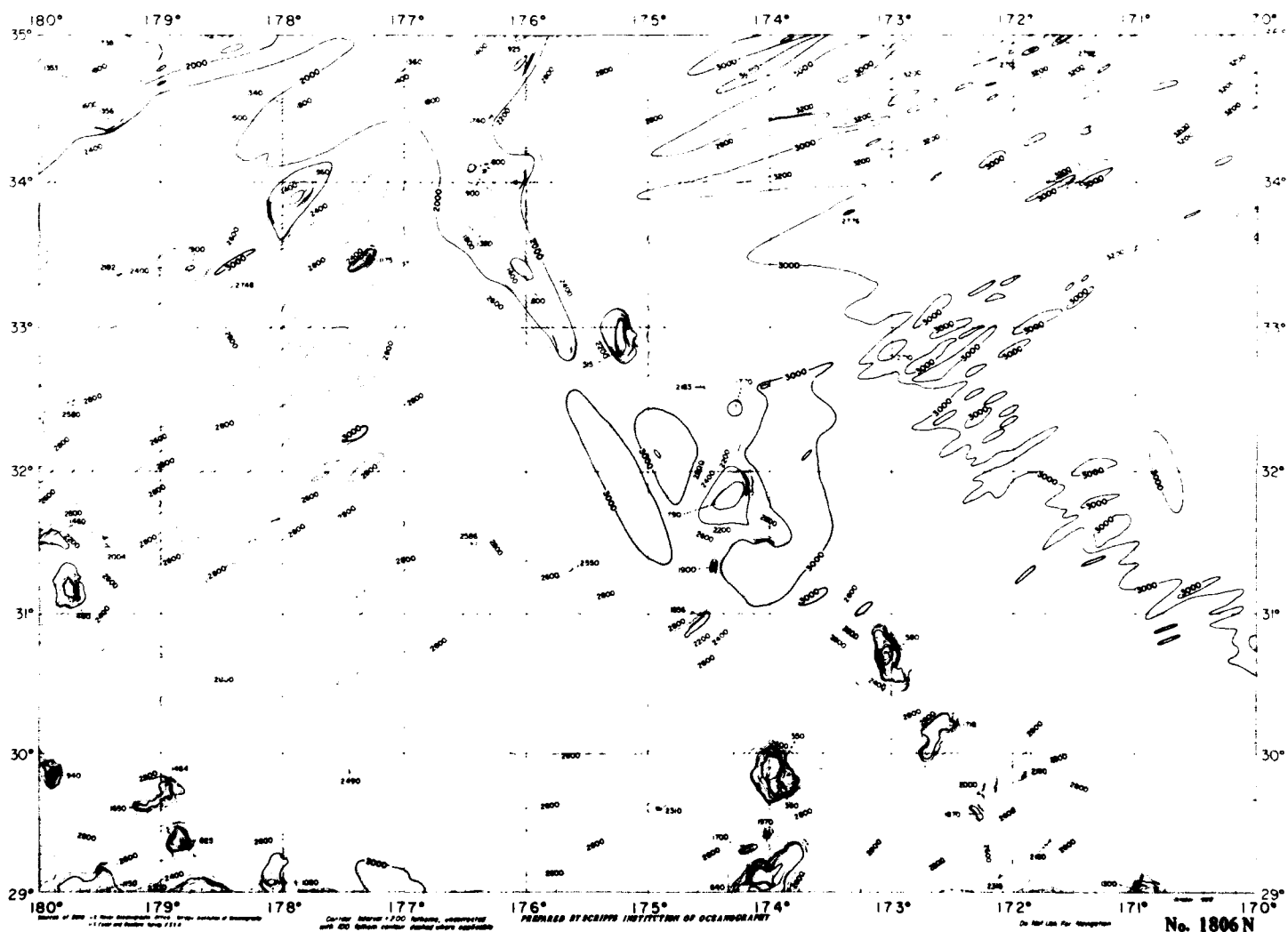
Source: U.S. Navy Hydrographic Office, 1:50,000 Scale, Series 1:114  
 Revised Edition, August 1954, by J. L. S. and J. L. S.  
 Hydrographic Office, United States Navy

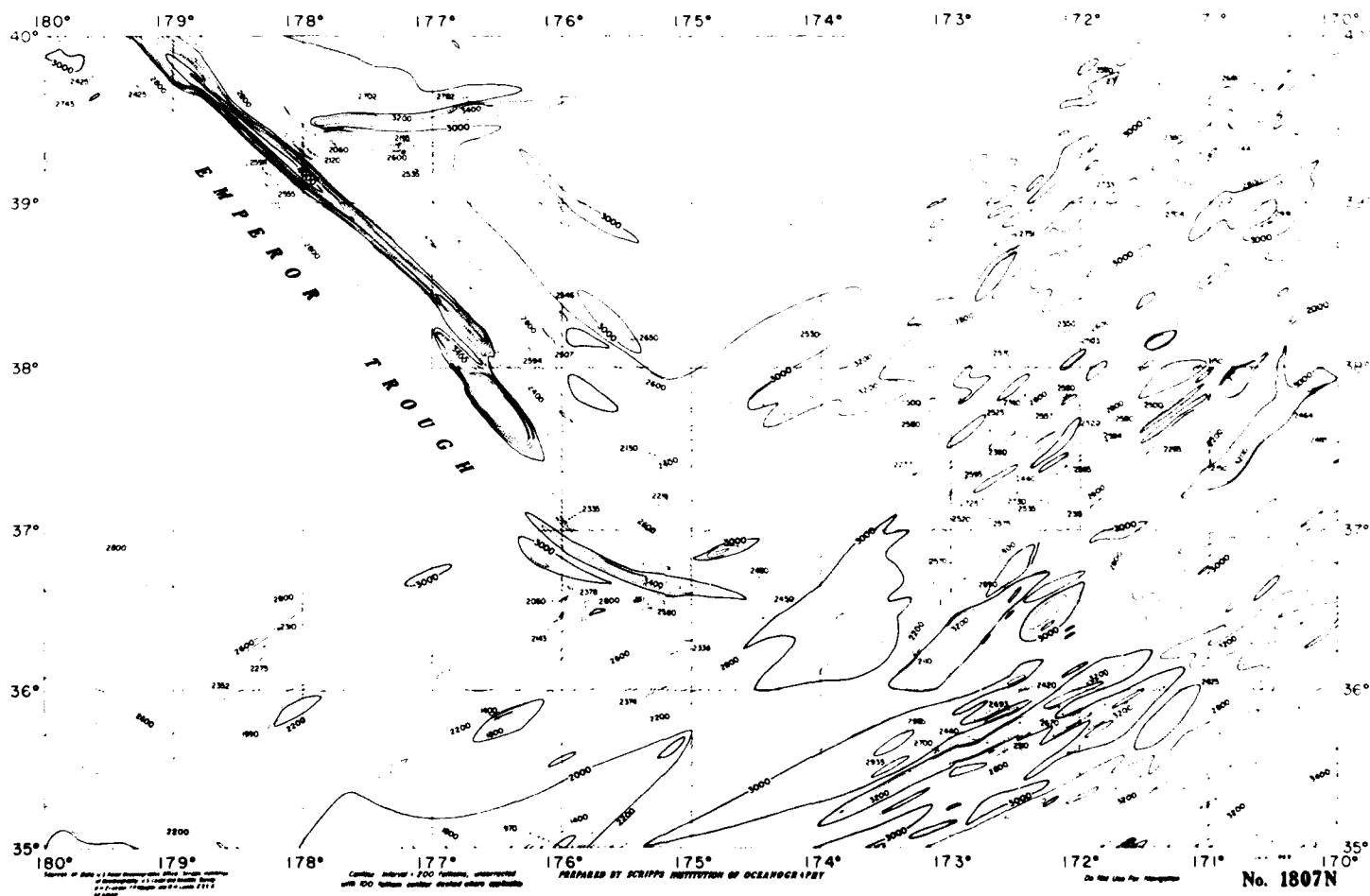
Contour Interval: 200 fathoms, uncorrected  
 with 100 fathoms contour dashed where appropriate

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No. 1805 N





No. 1807N

AD-A085 916

SCRIPPS INSTITUTION OF OCEANOGRAPHY LA JOLLA CA  
BATHYMETRIC ATLAS OF THE NORTH PACIFIC OCEAN. (U)  
1978

F/B 8/10

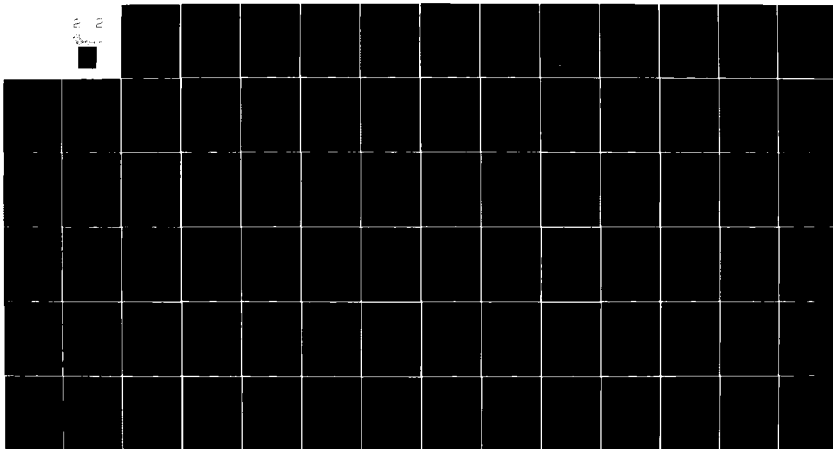
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NOO-NO-PUB-1301-2-3(S)

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2 2



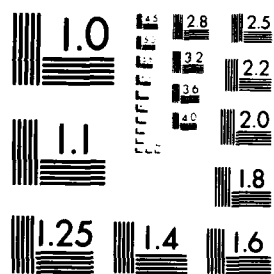
END

DATE

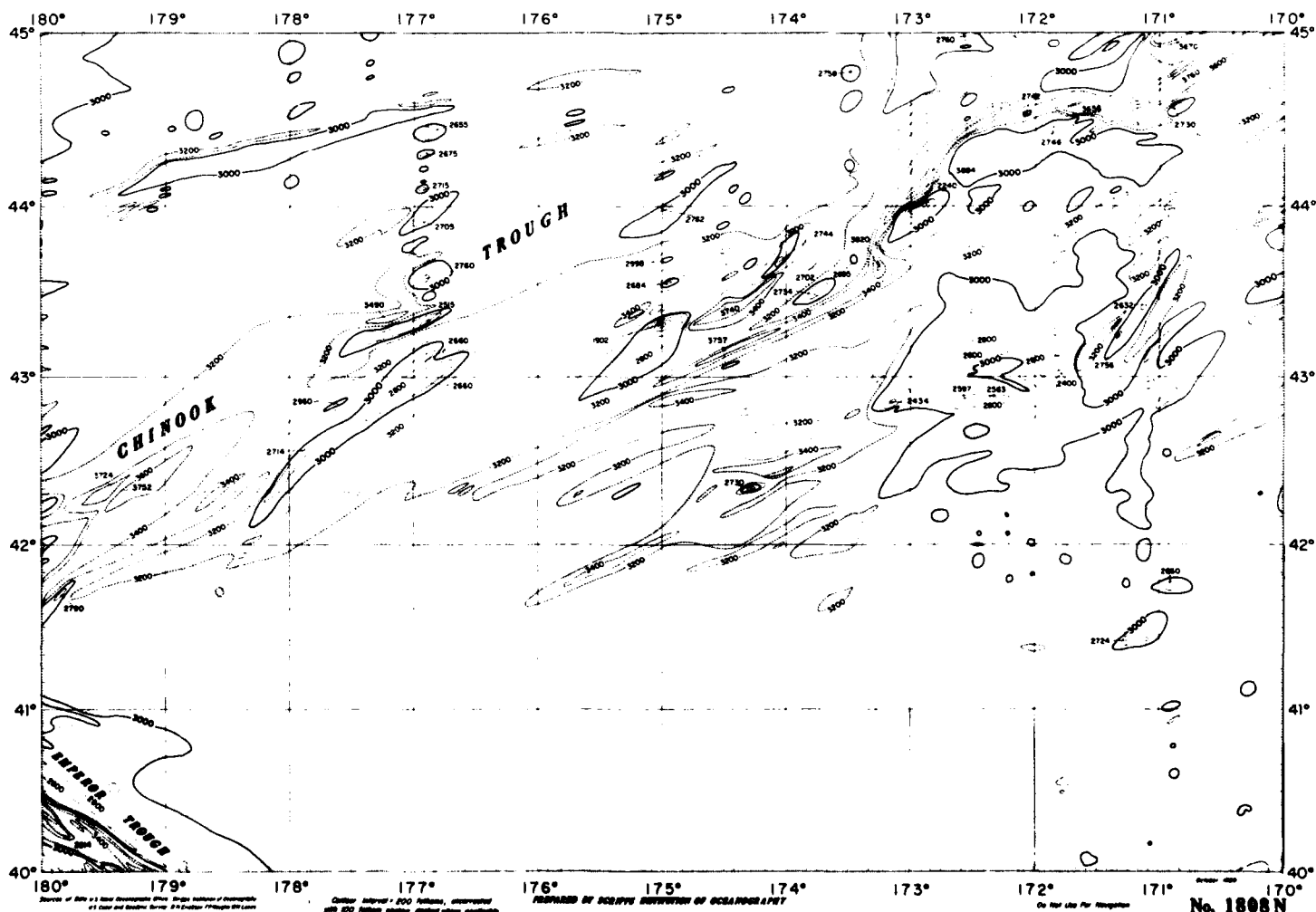
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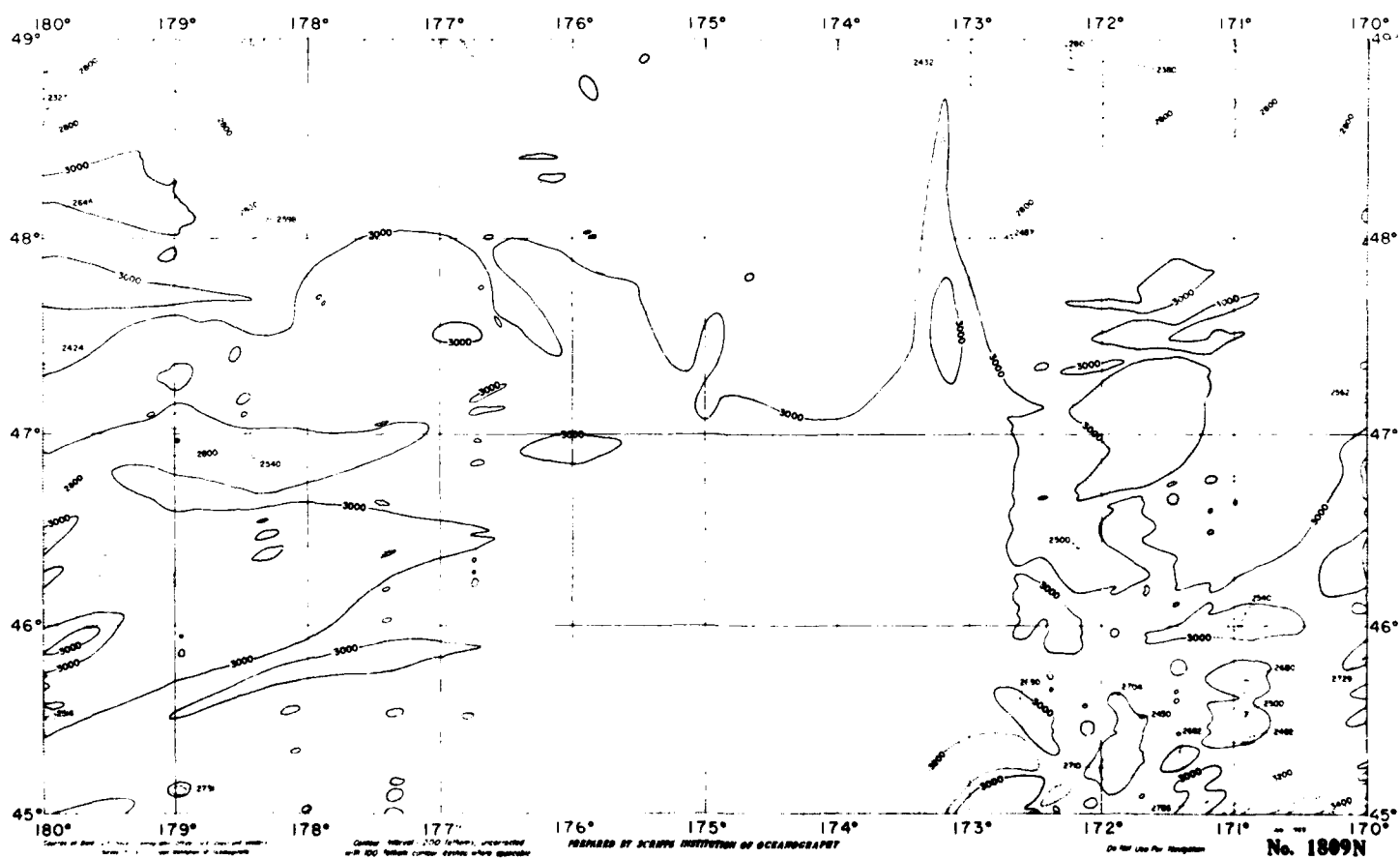
8-80

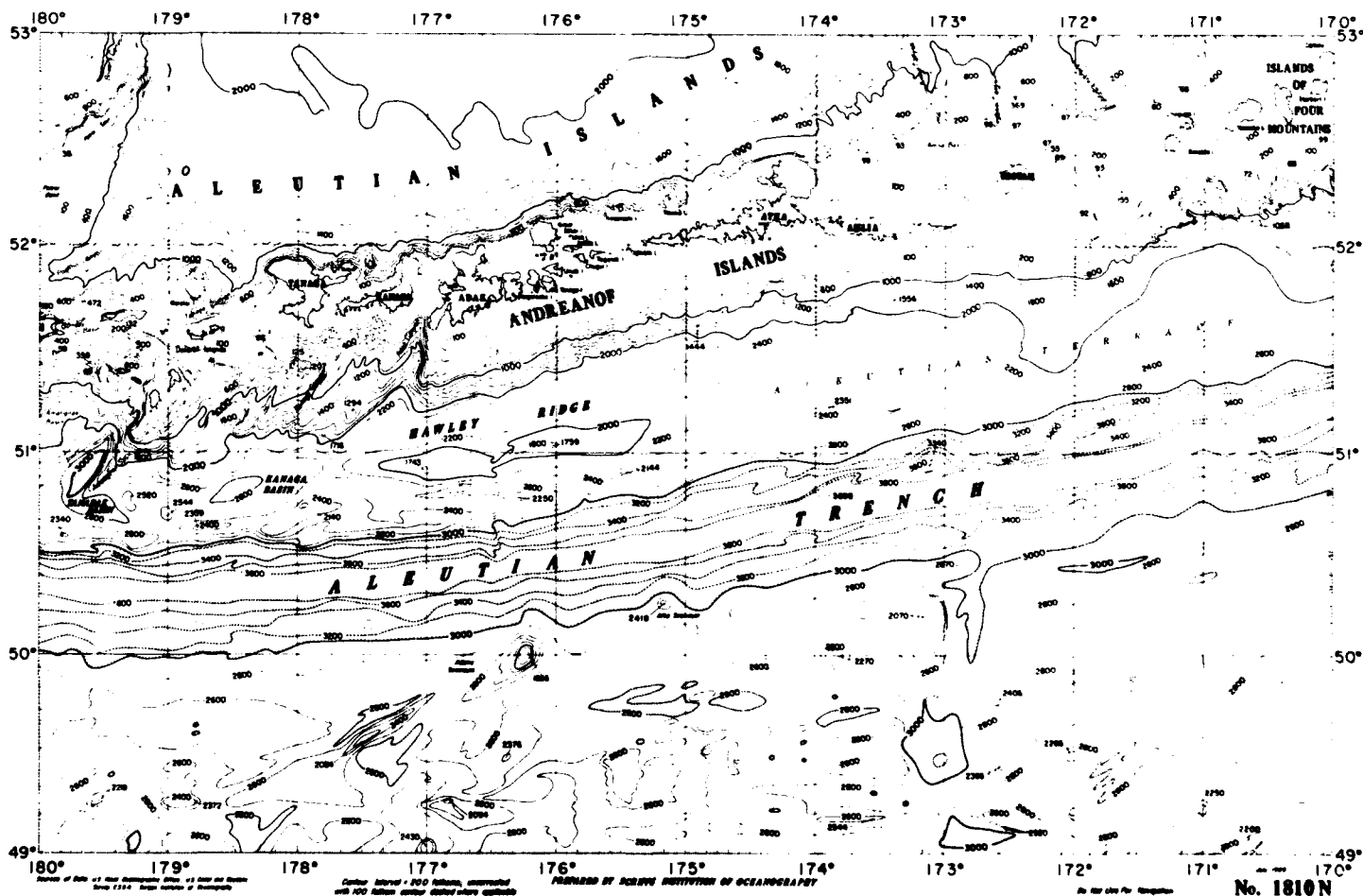
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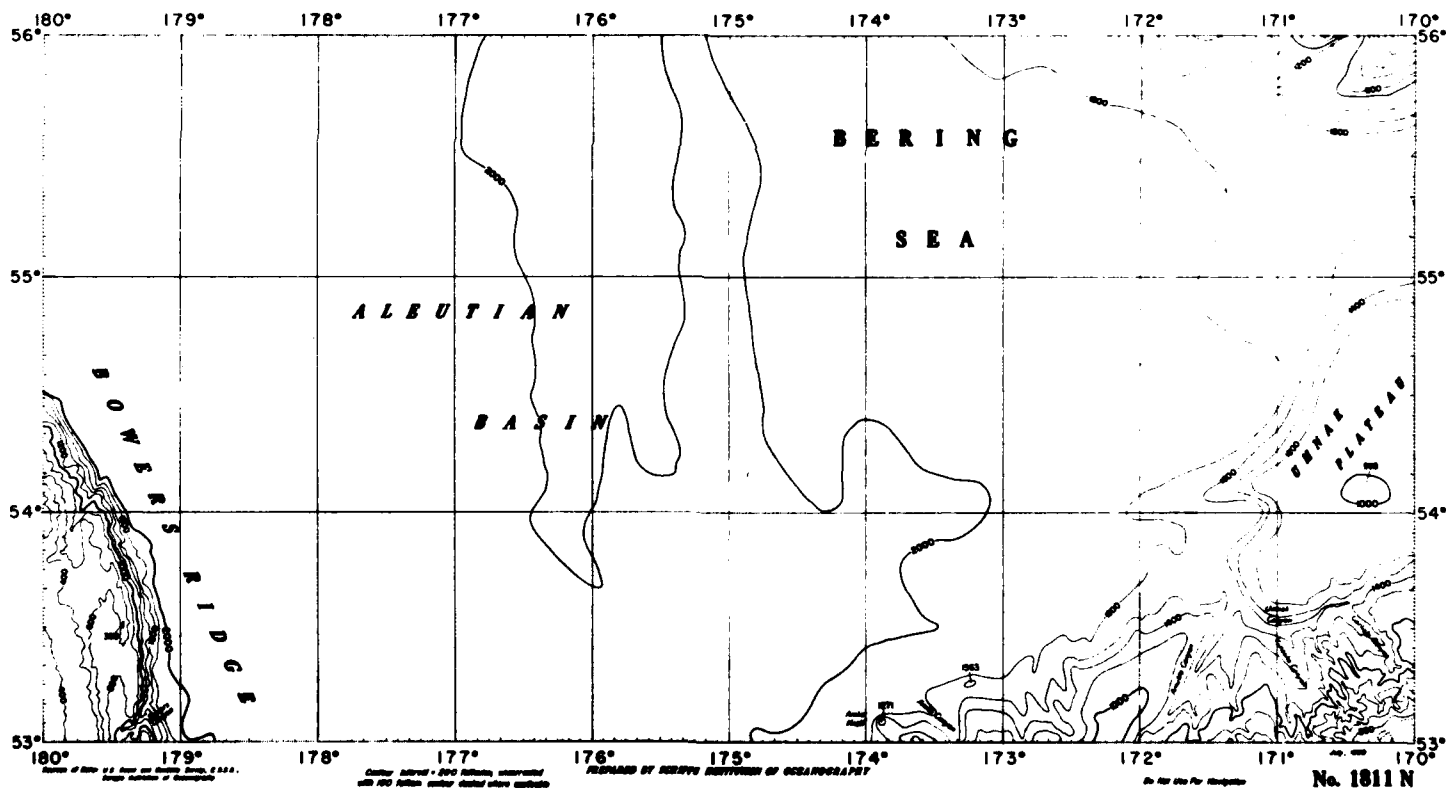


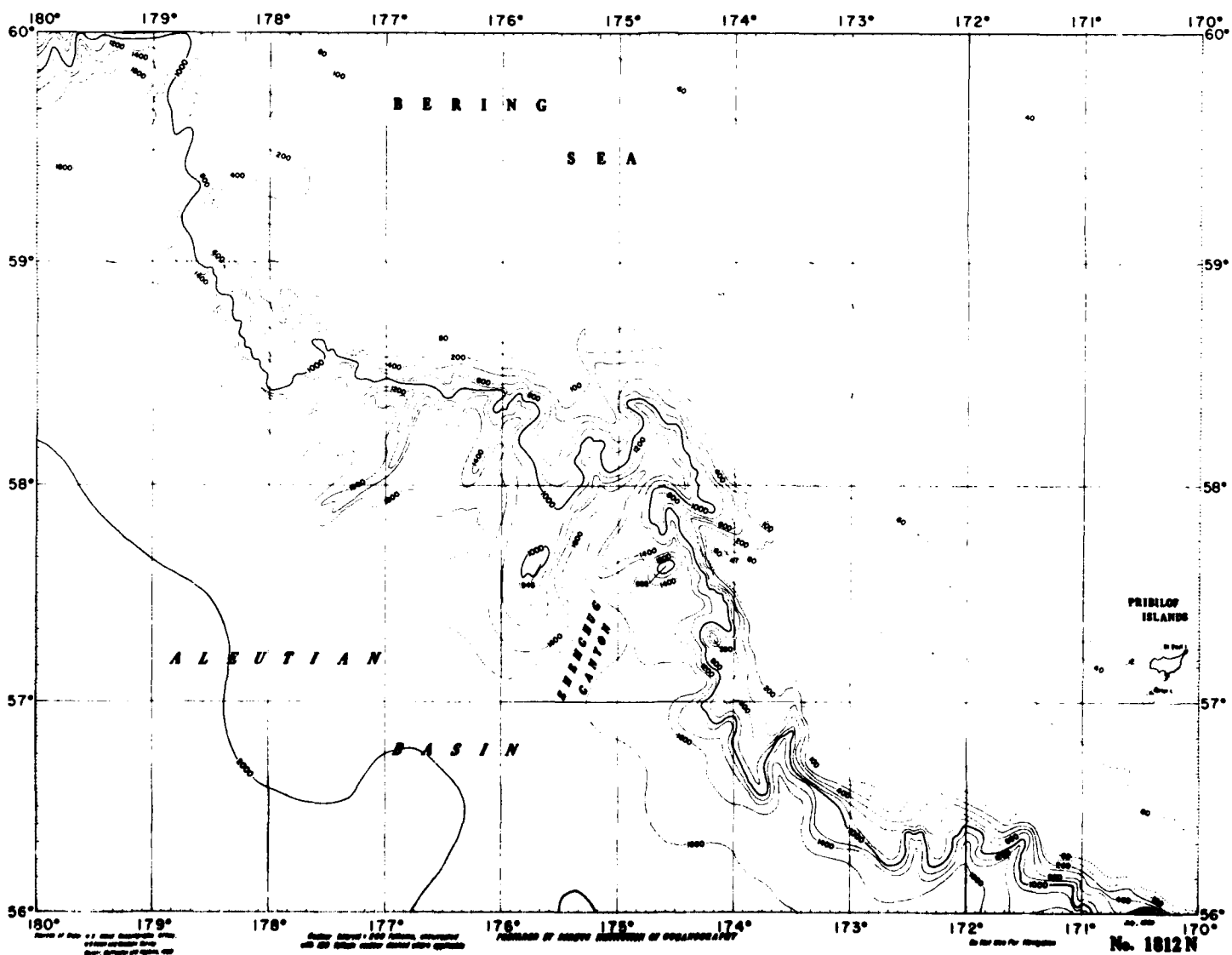
MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS 1963-A











180° 179° 178° 177° 176° 175° 174° 173° 172° 171° 170°  
62° 62°

61° 61°

60° 60°

59° 59°

180° 179° 178° 177° 176° 175° 174° 173° 172° 171° 170°

SAINT  
MATTHEW  
ISLAND

Projections:

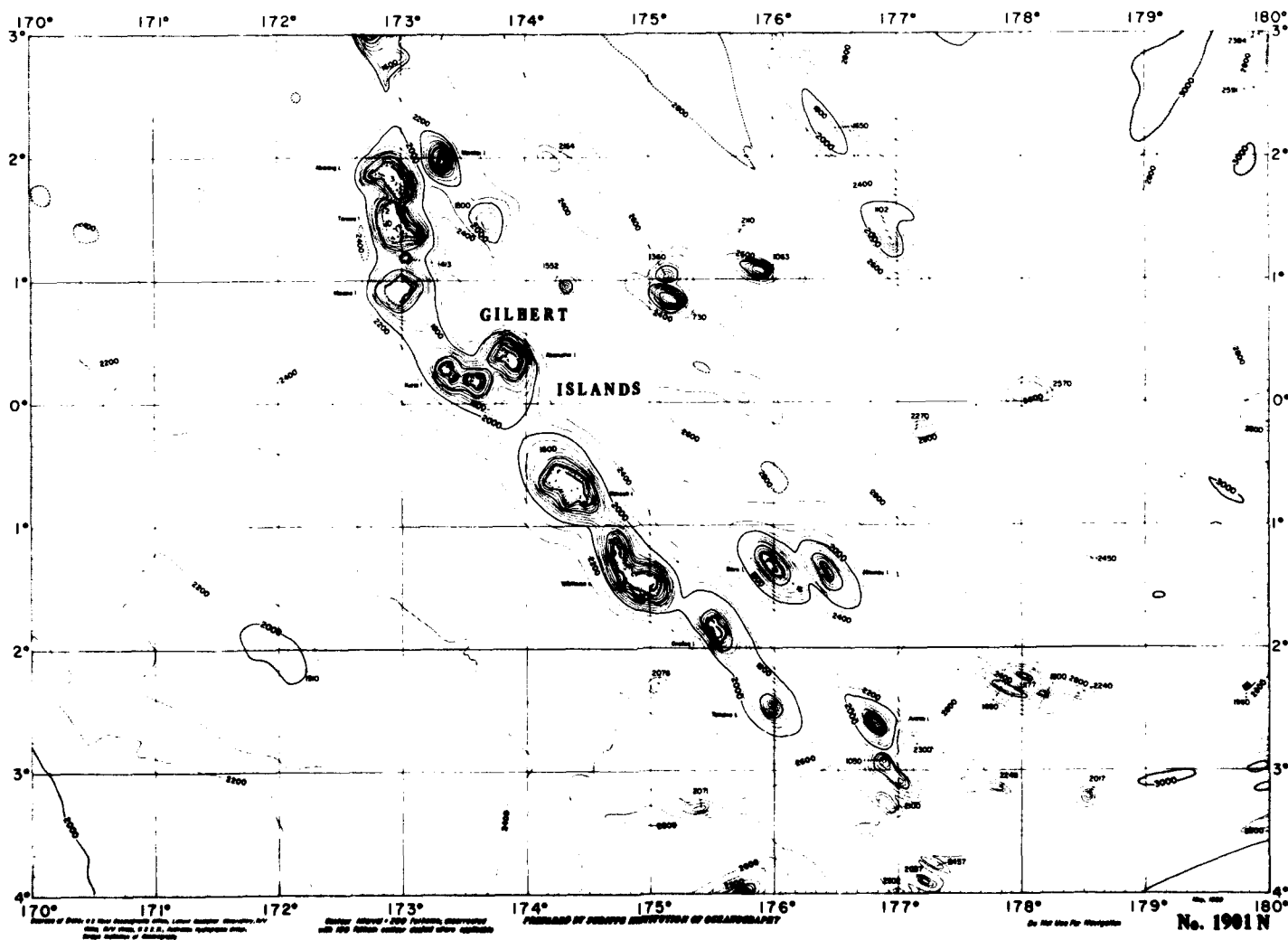
Scale of 1:100,000  
Vertical Exaggeration of 10:1  
Horizontal Exaggeration of 1:1  
All distances are in statute miles  
Scale, distance and area, 1:100,000

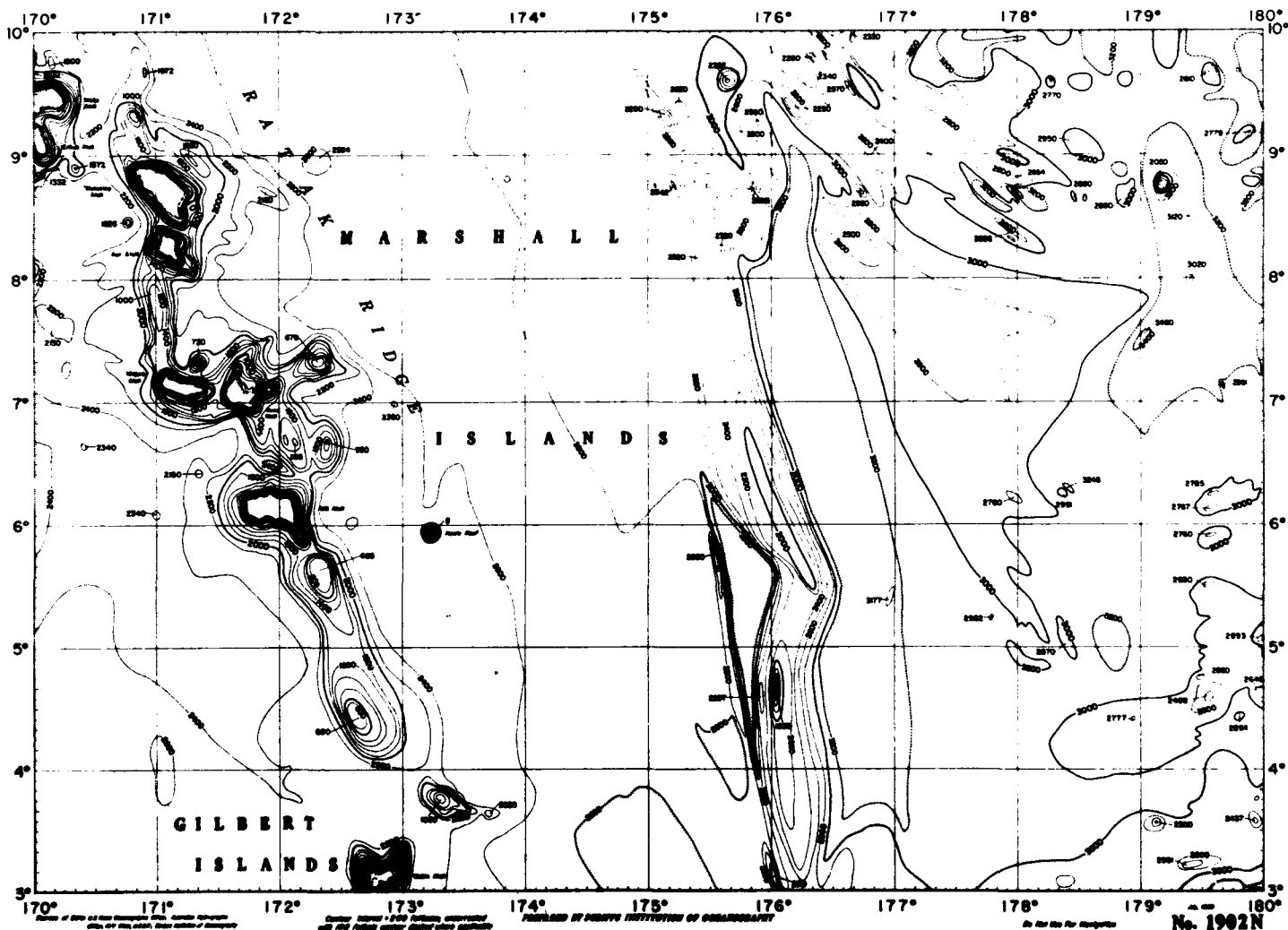
Control: Surveyed by U.S. Navy, 1944-1945  
and 1946-1947 under contract to the Navy

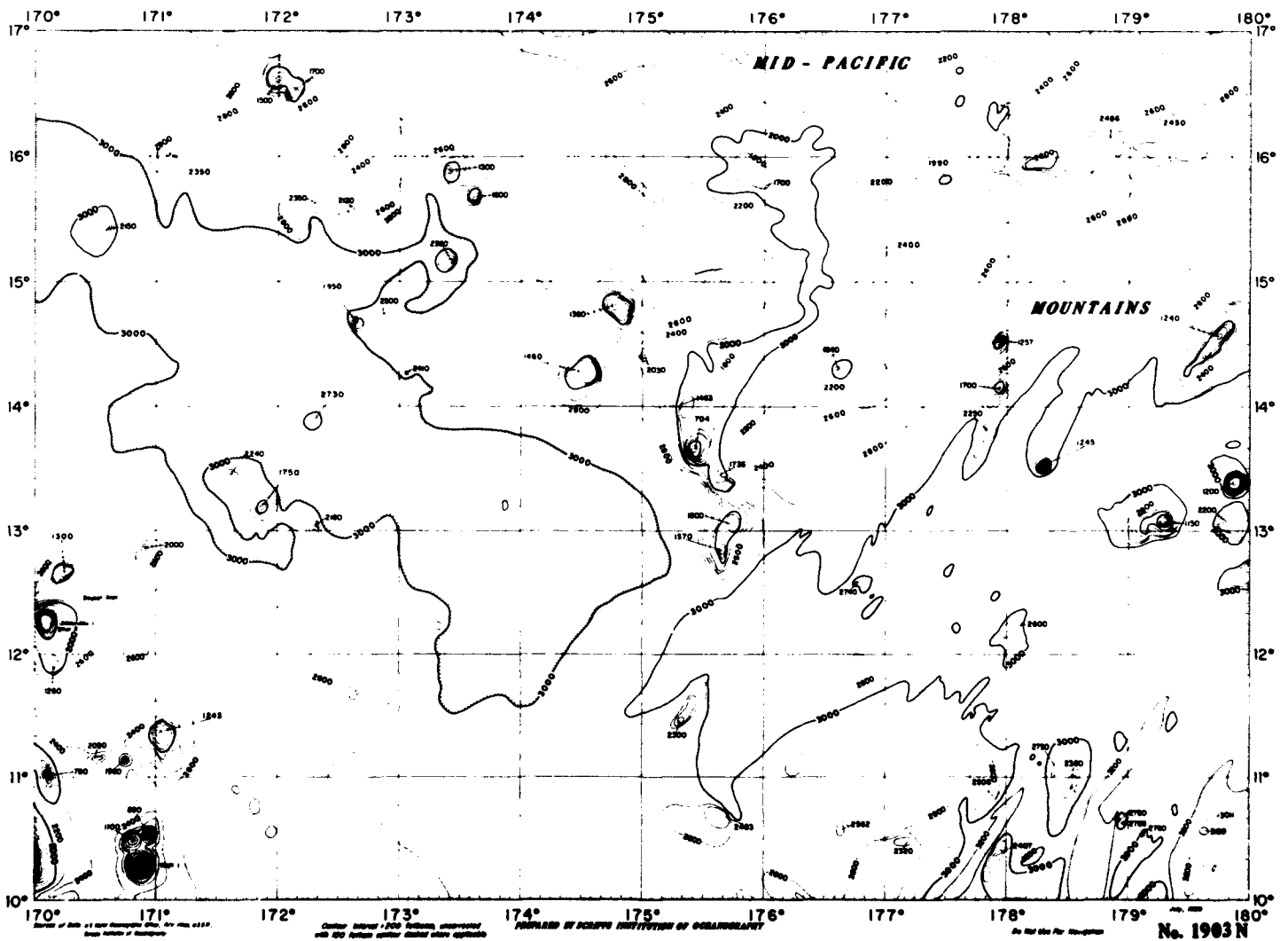
PREPARED BY NAVAL INSTITUTE OF OCEANOGRAPHY

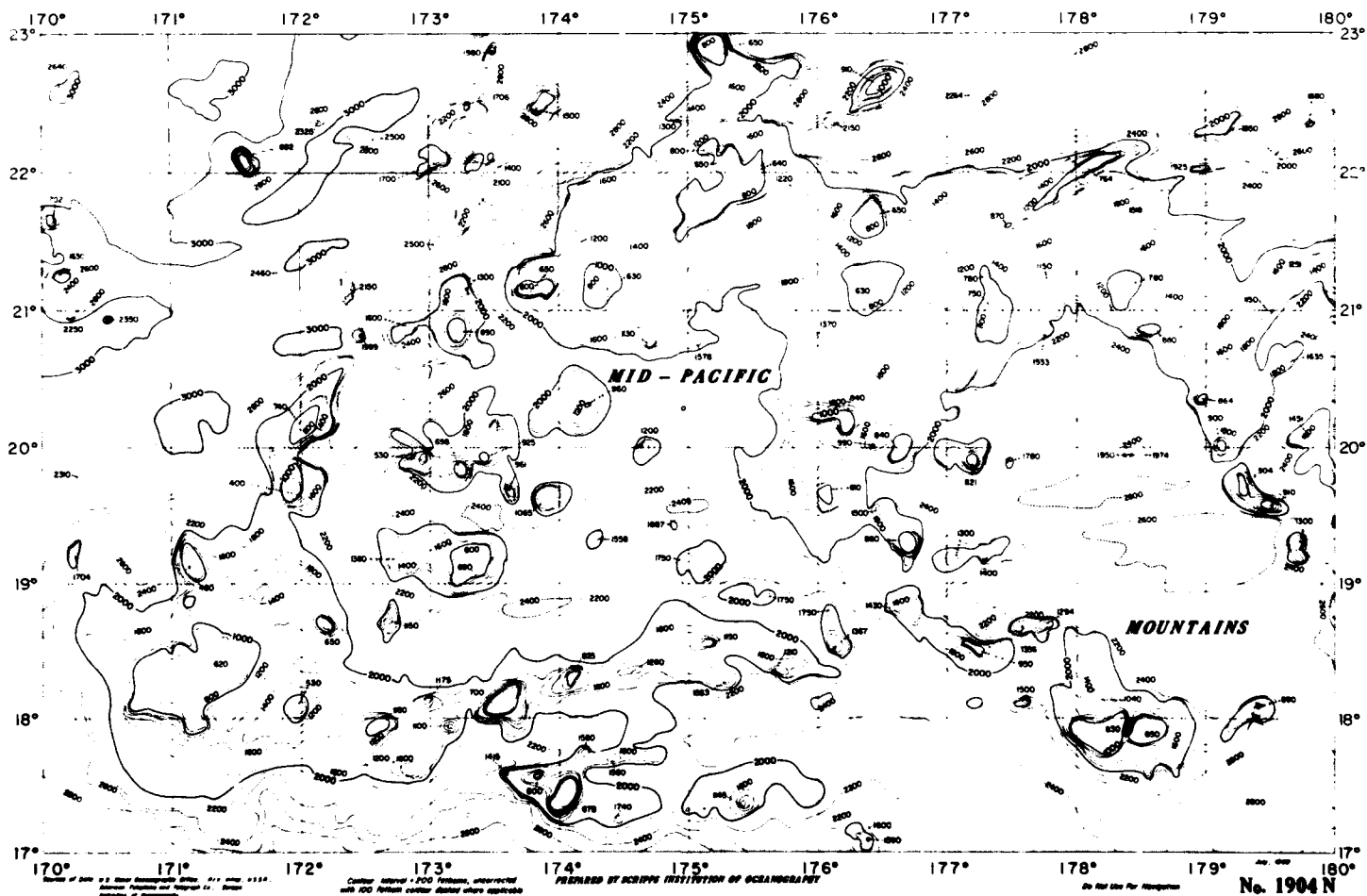
Do Not Use For Navigation

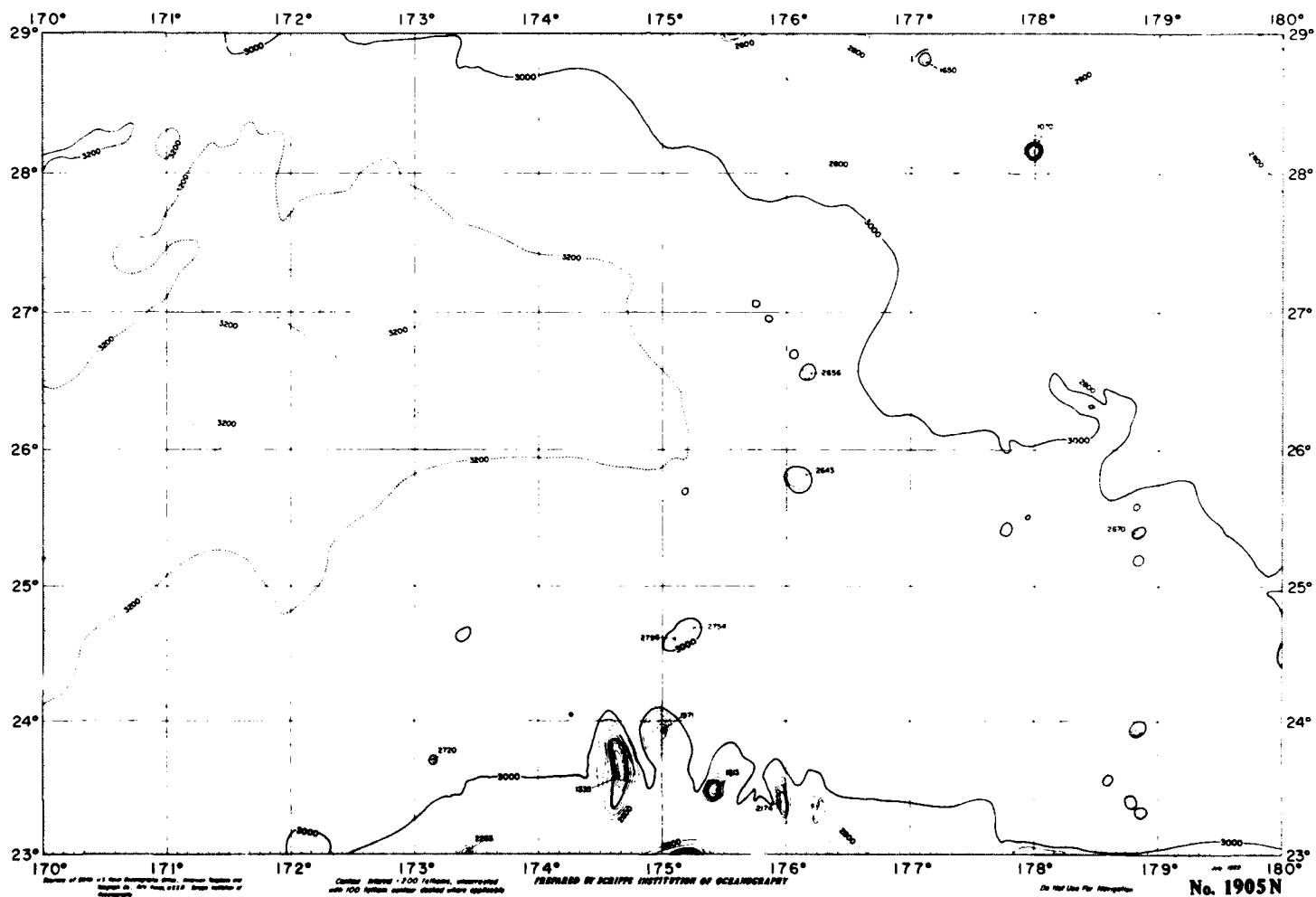
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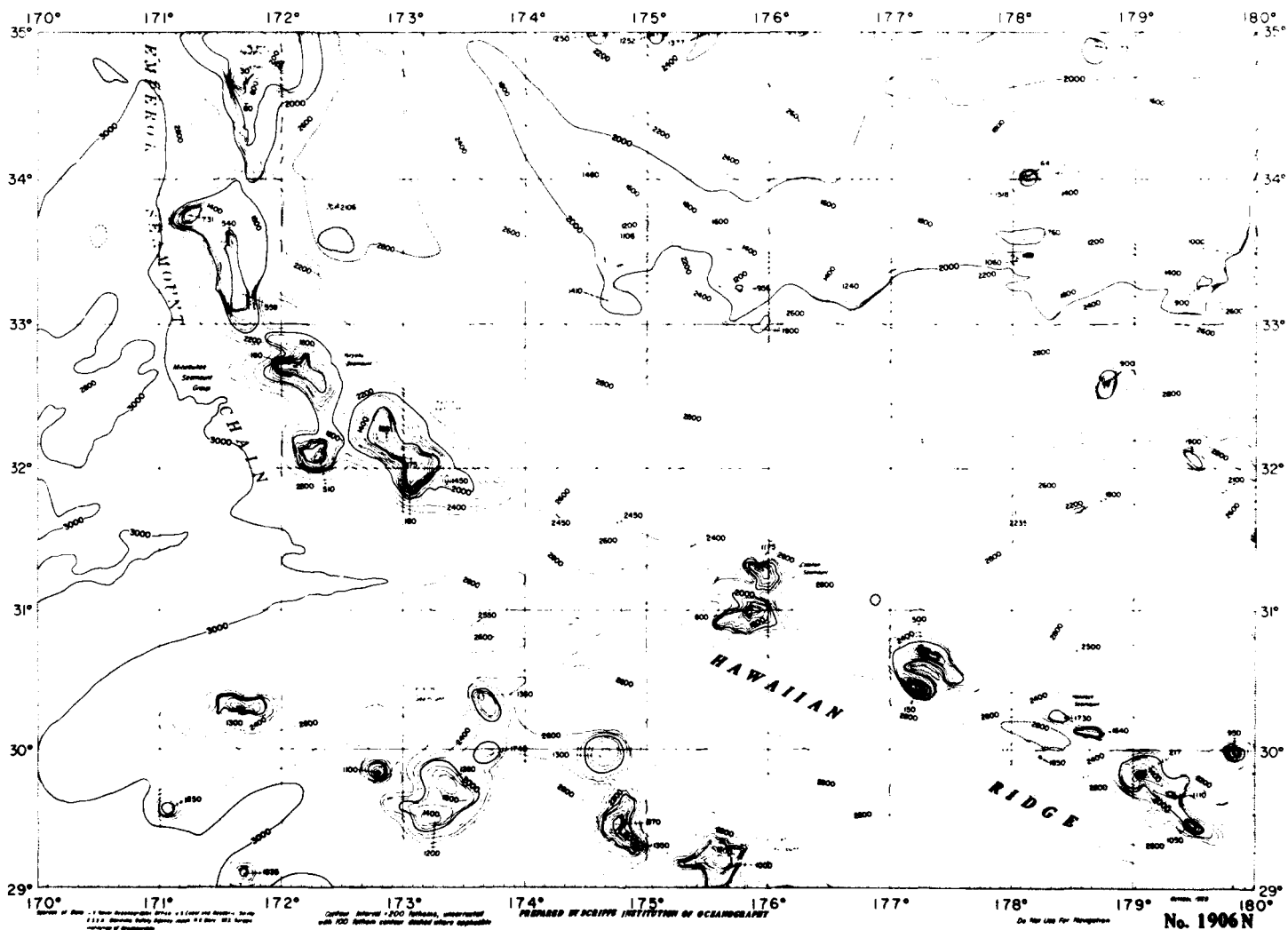


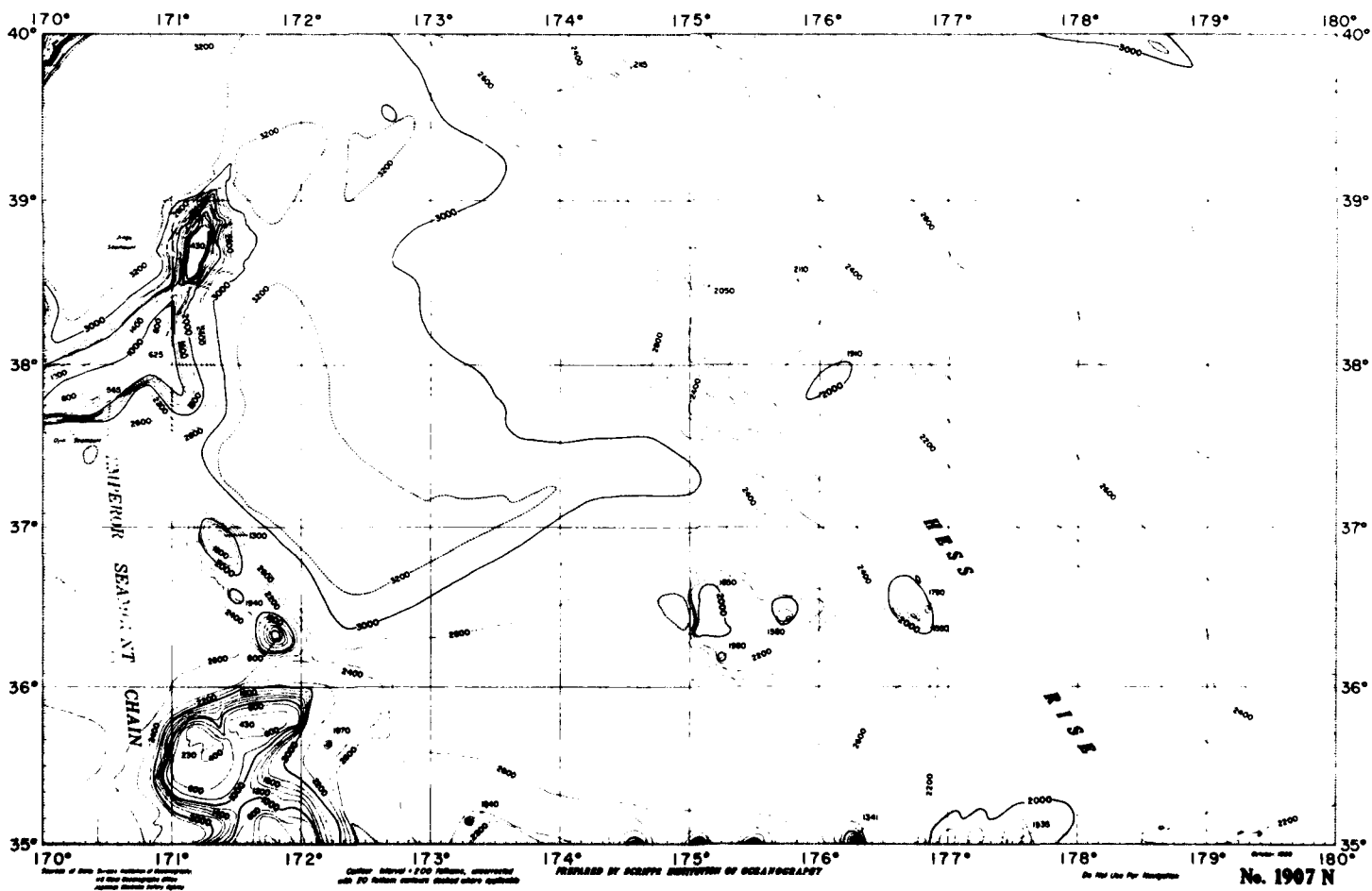


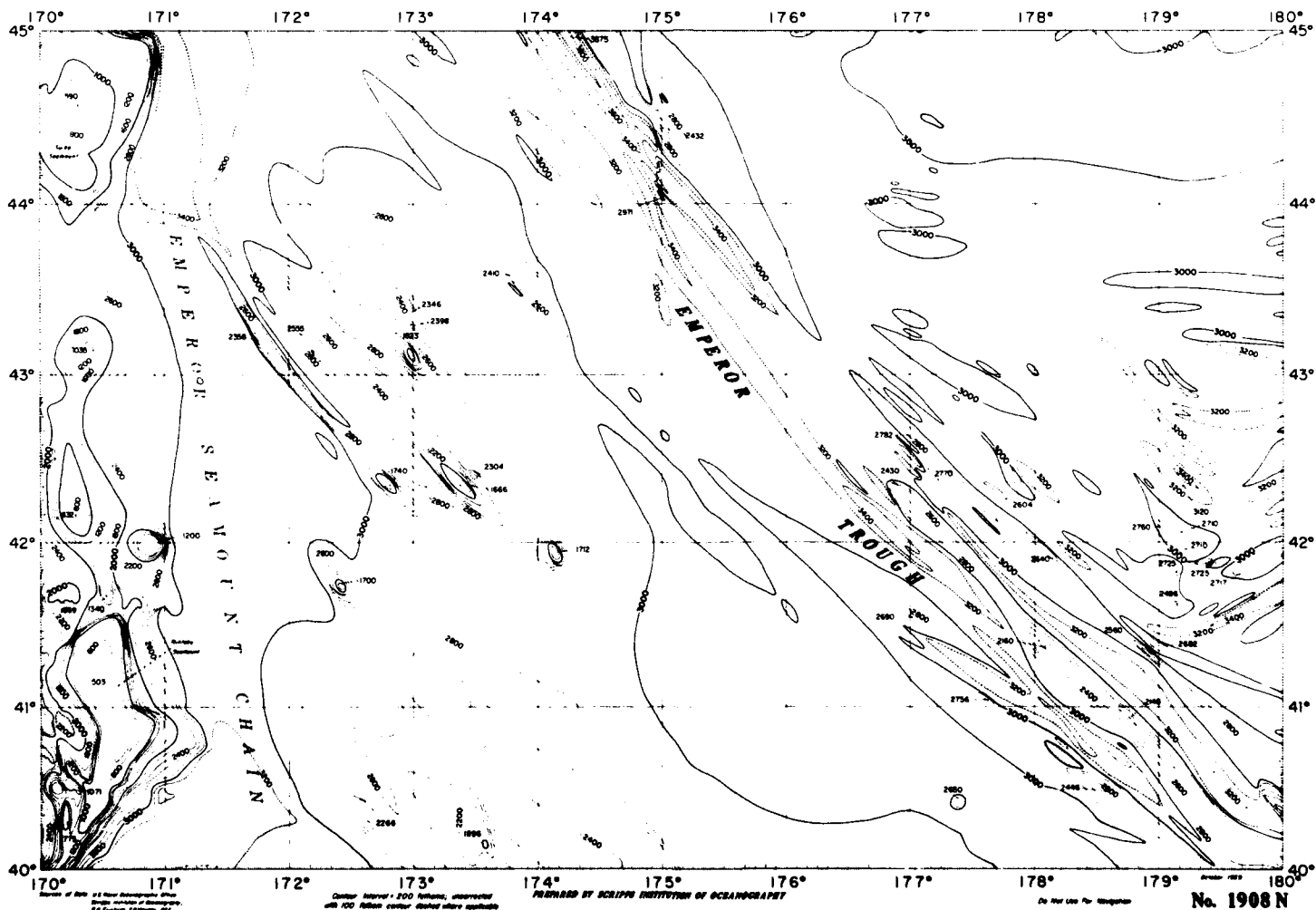


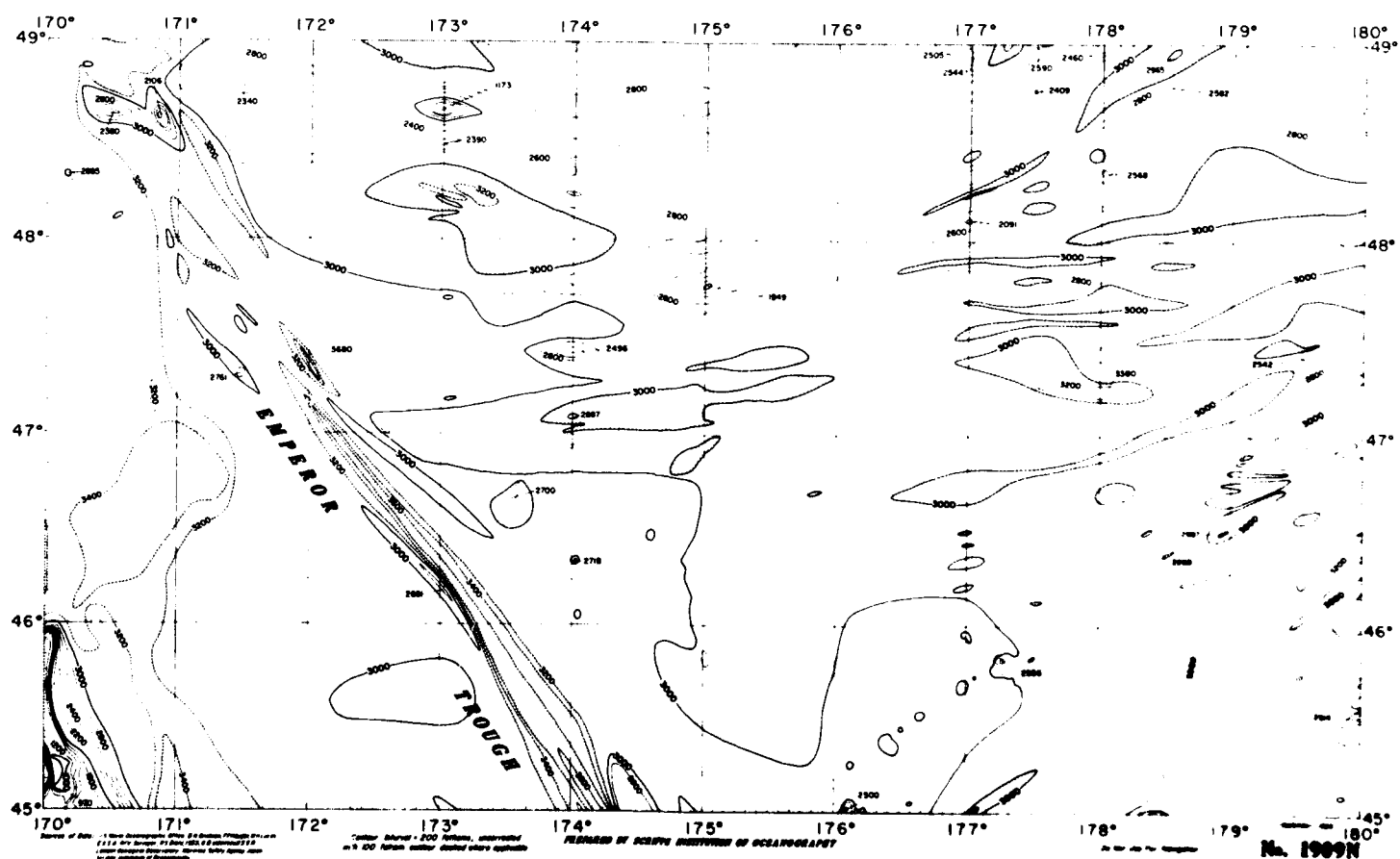


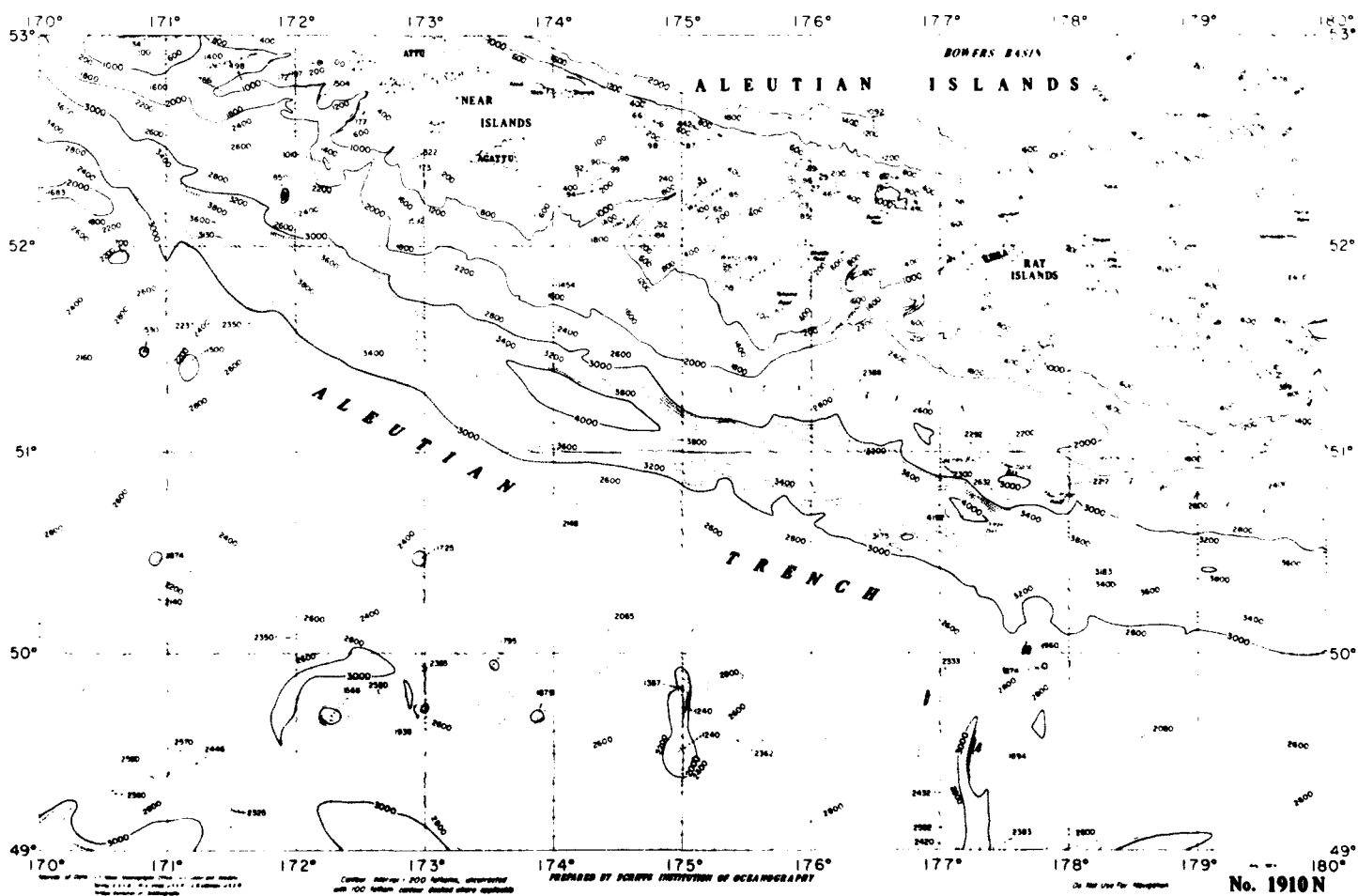


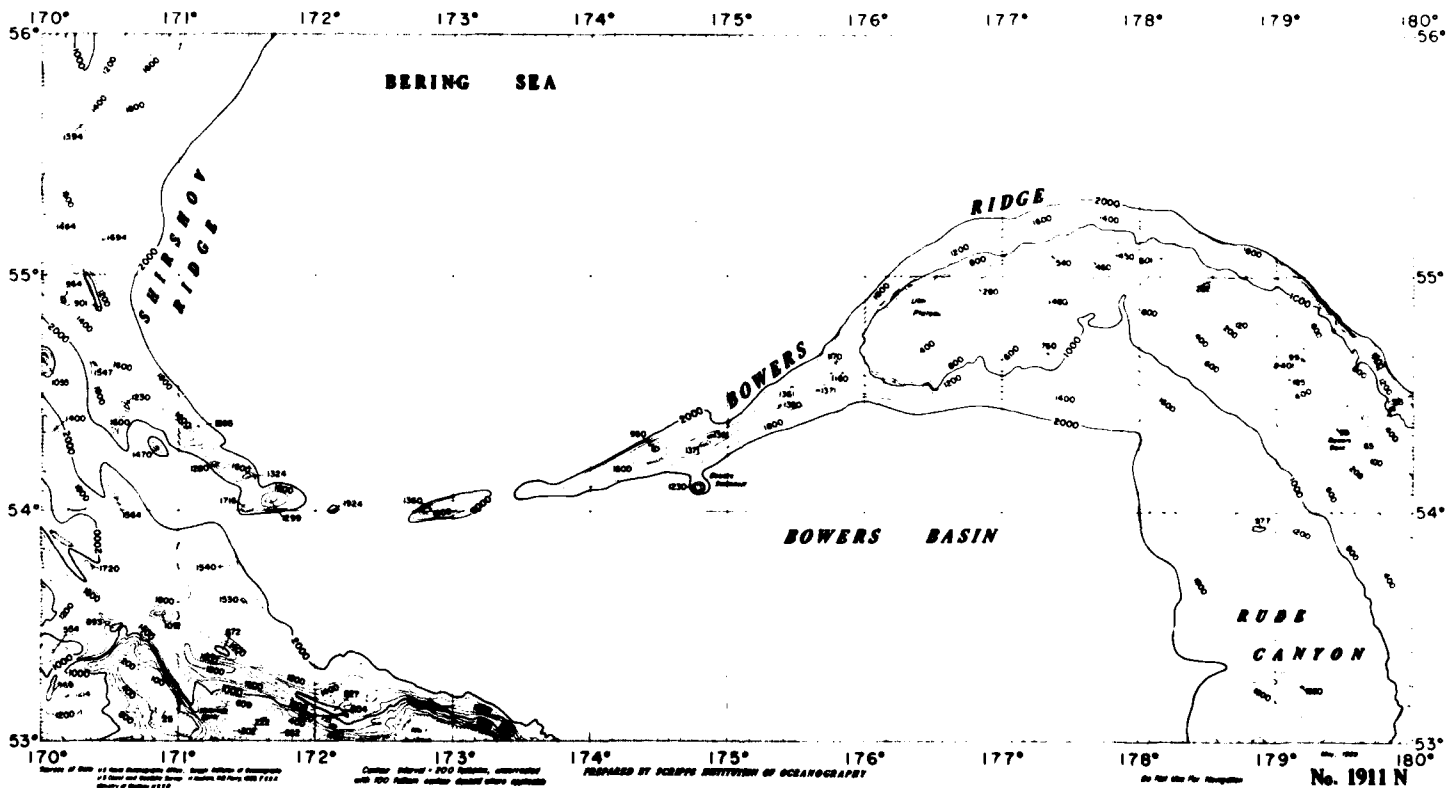


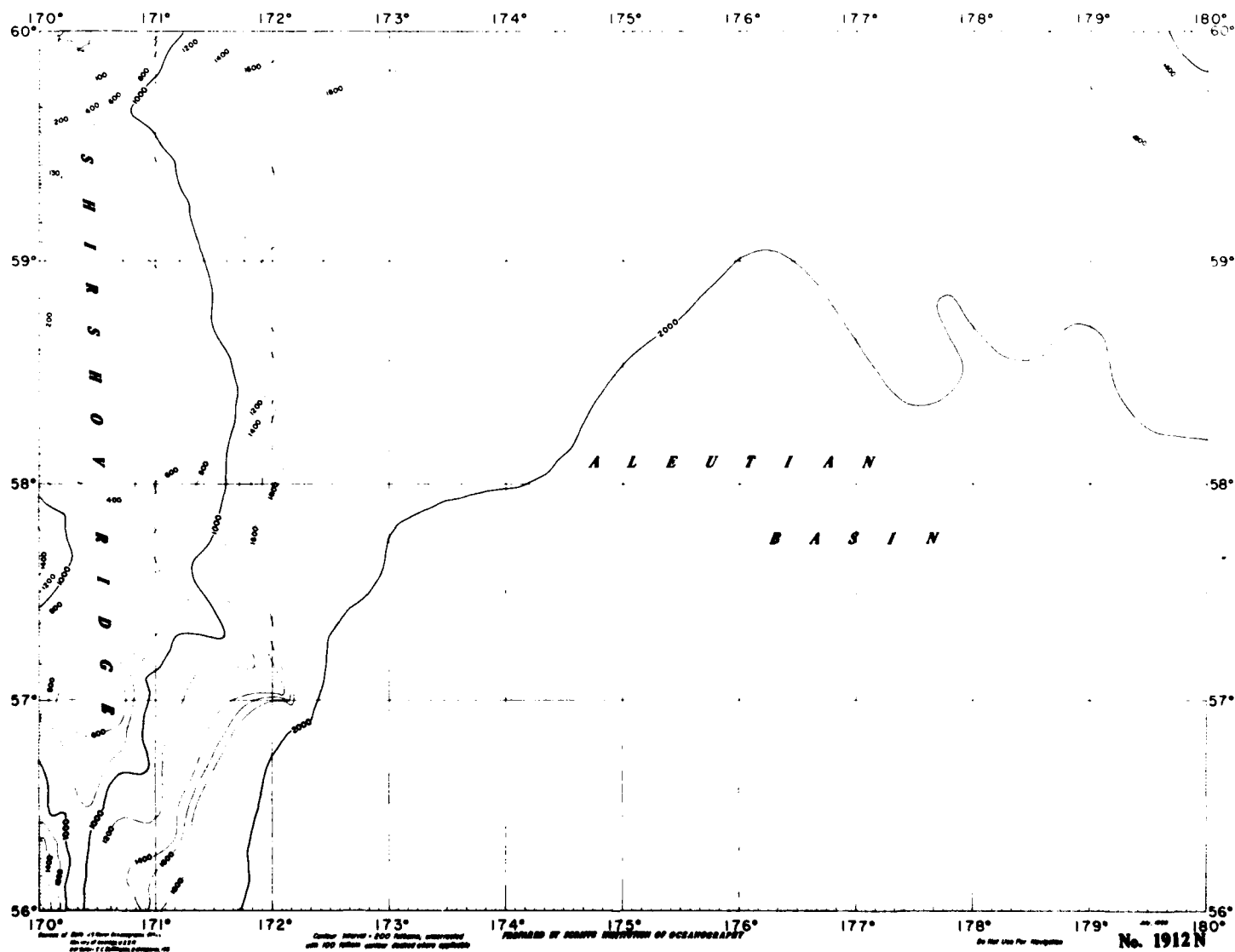


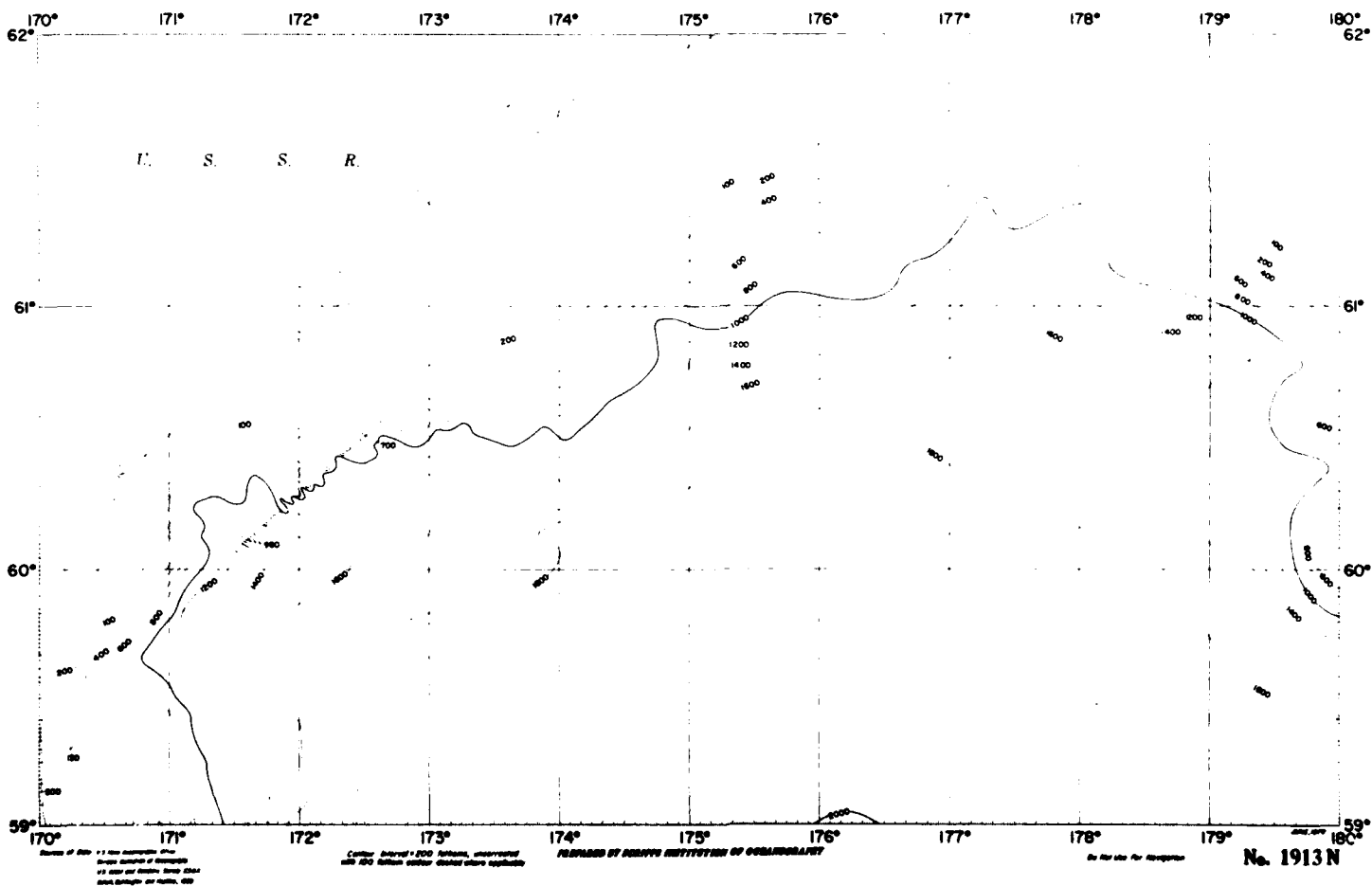


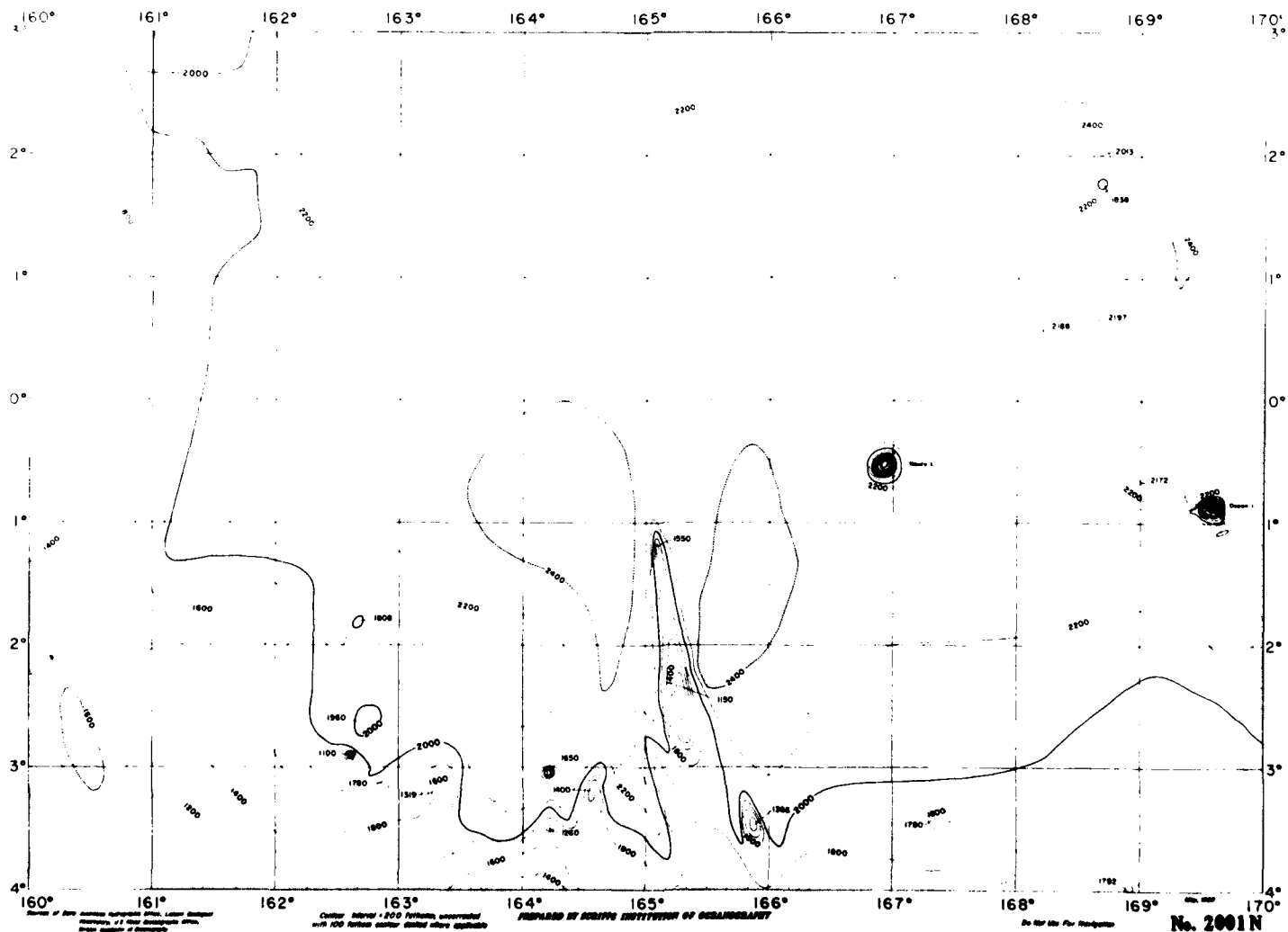




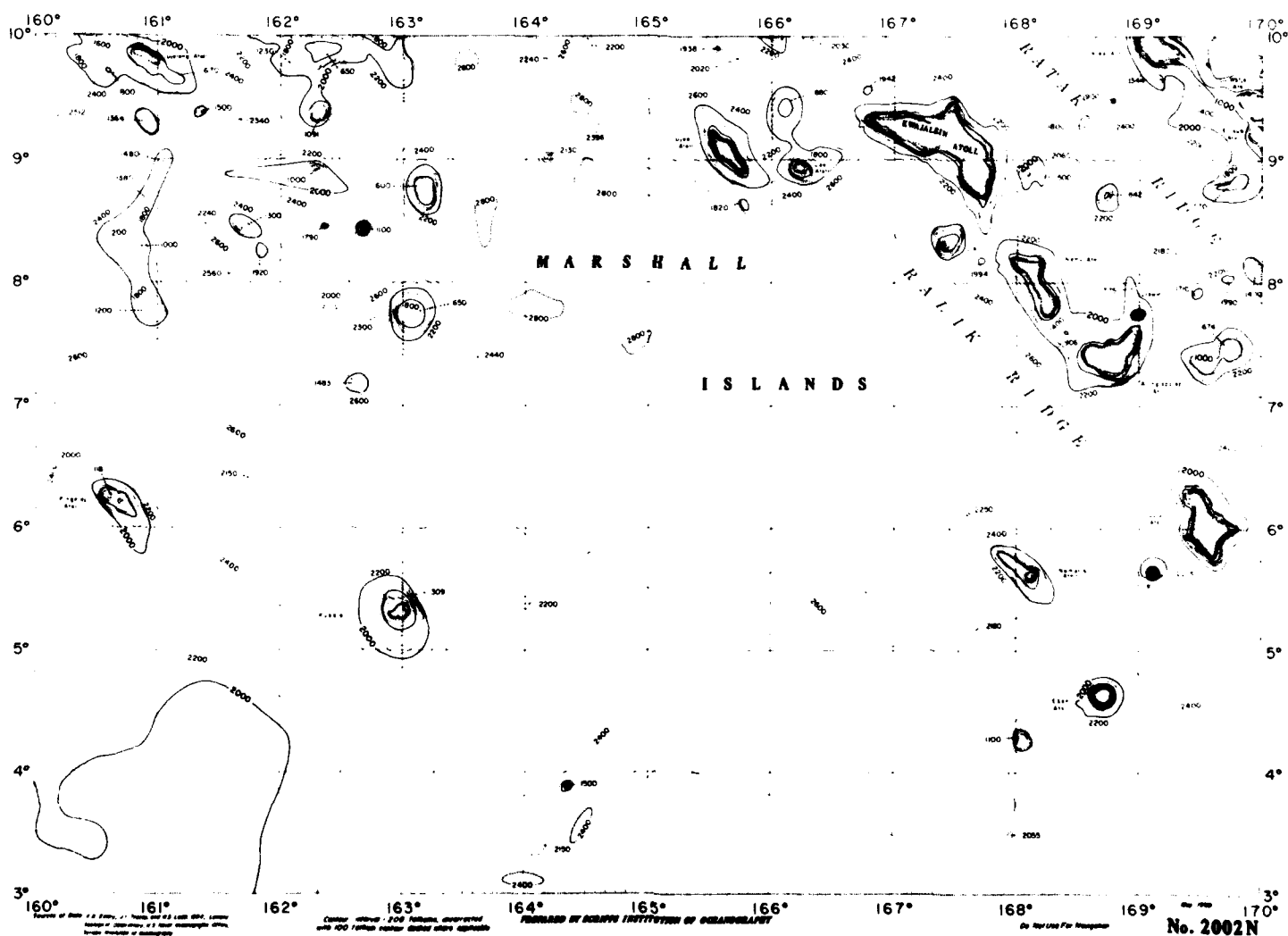


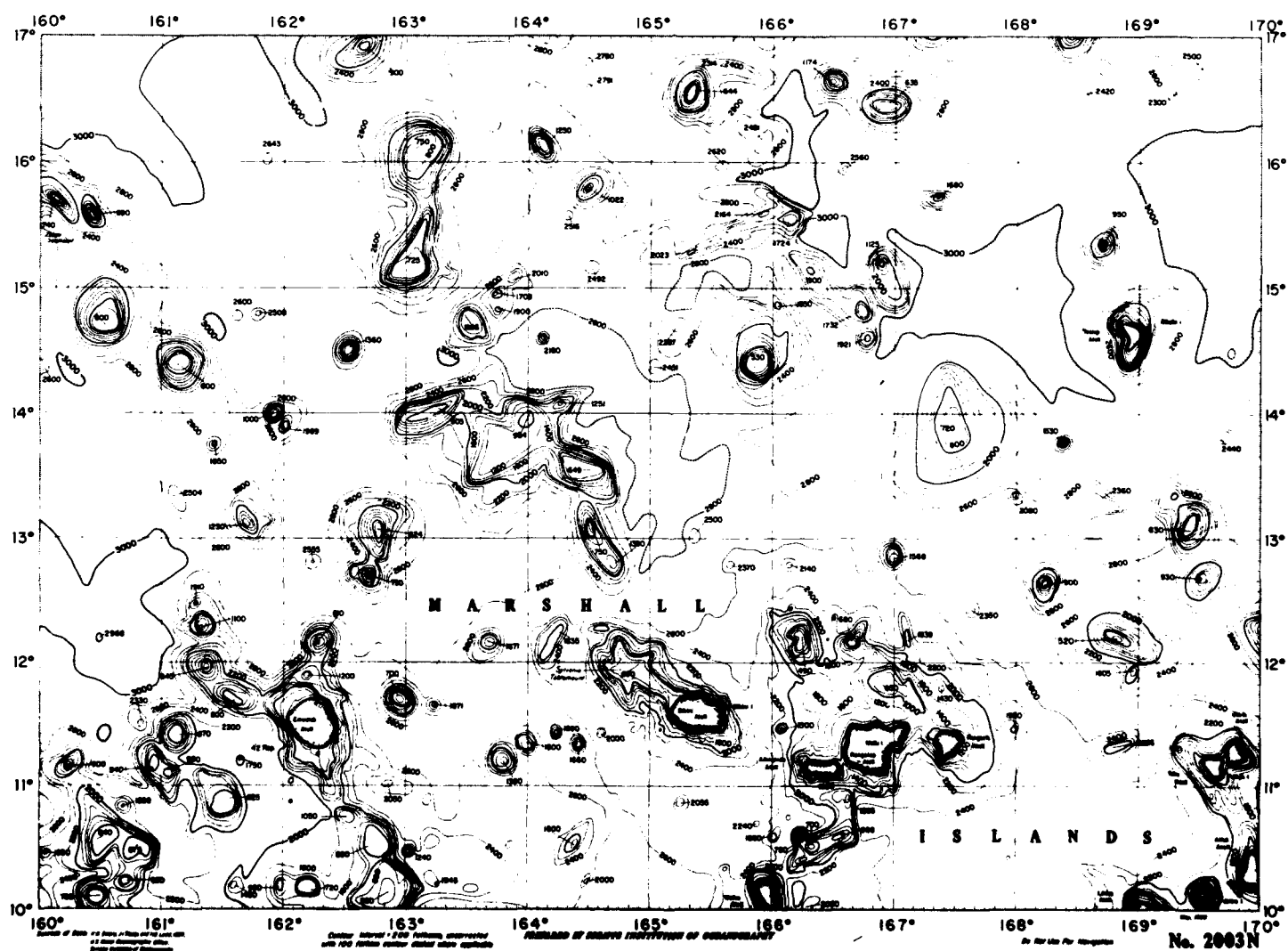


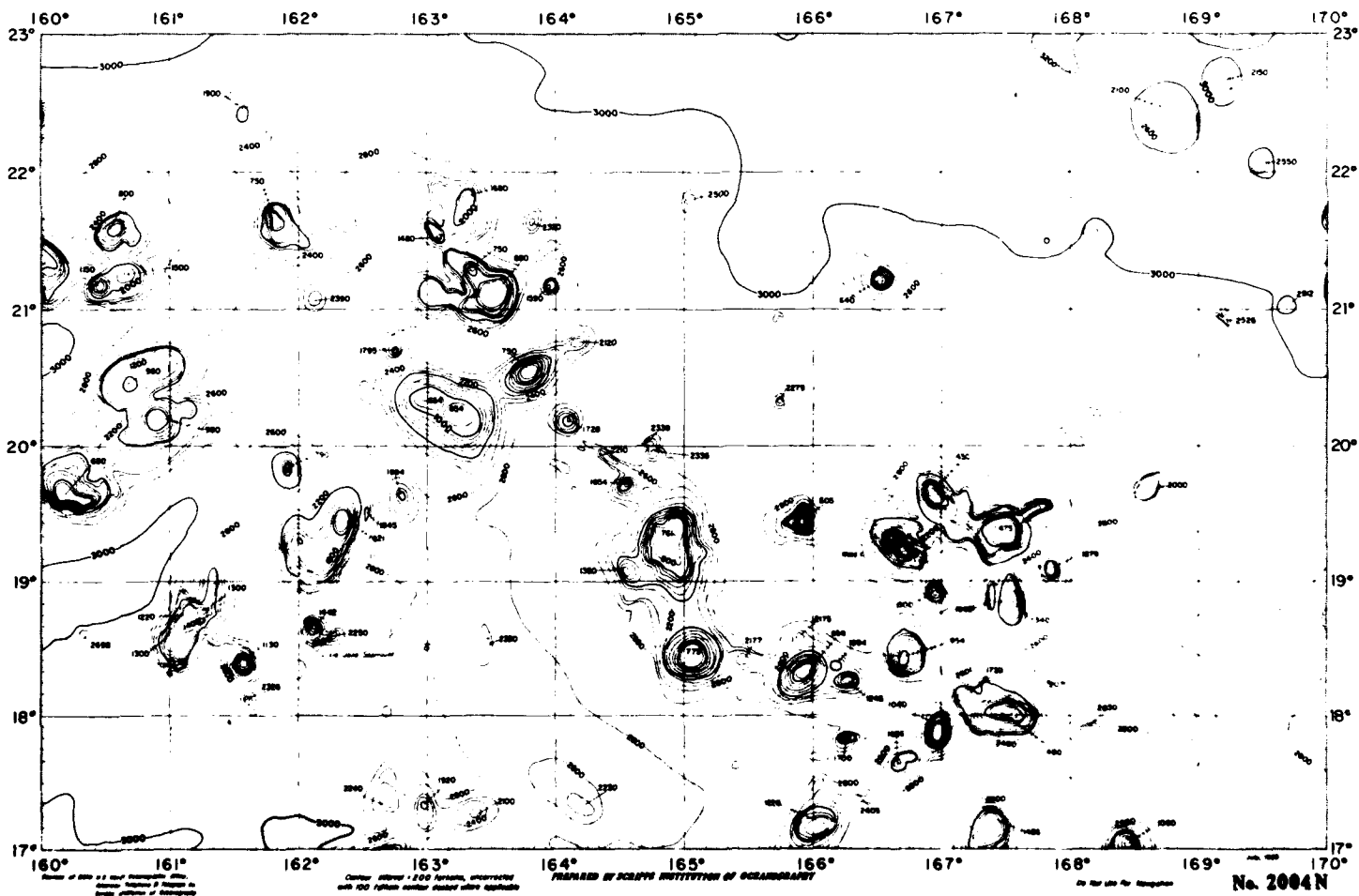


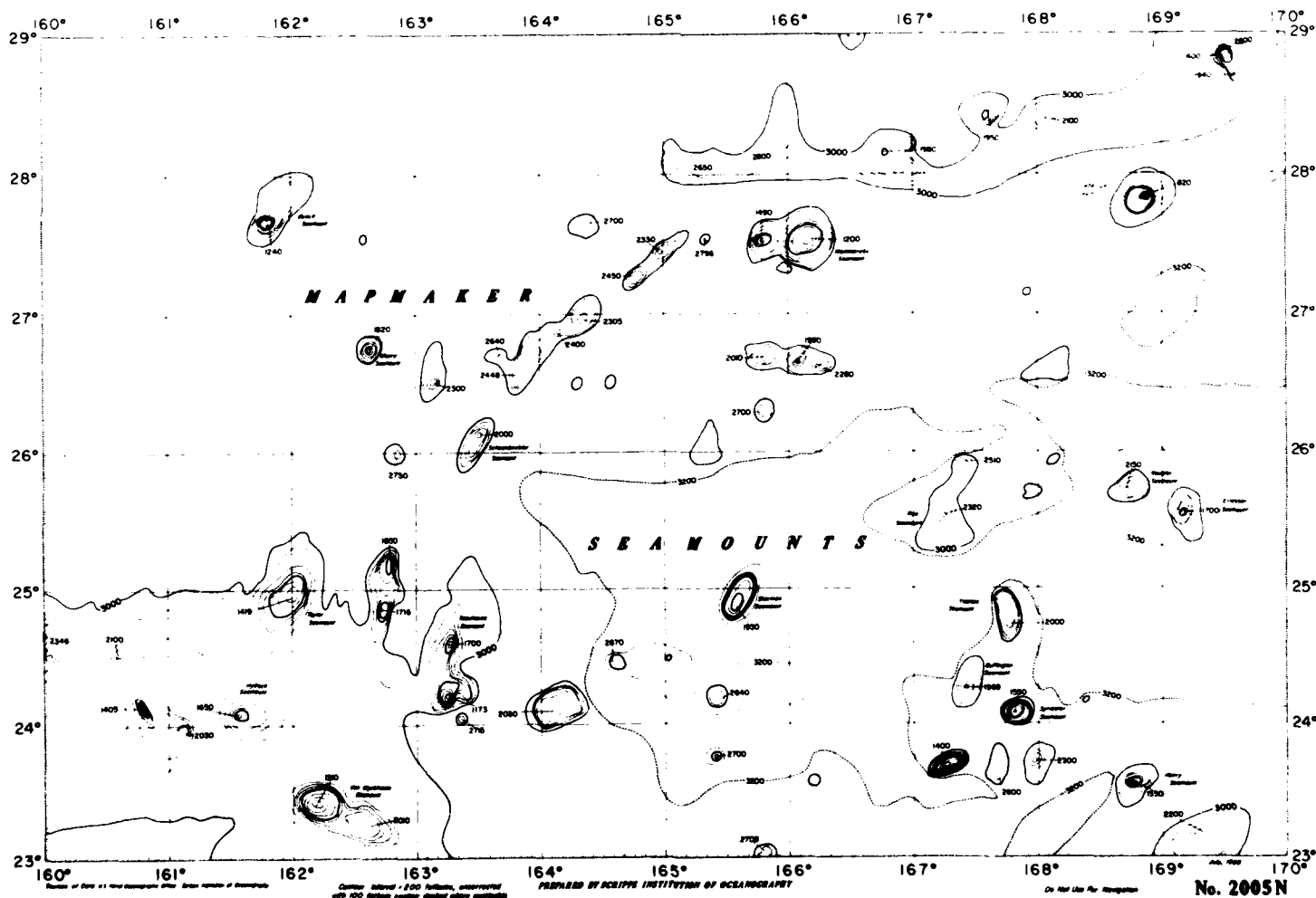


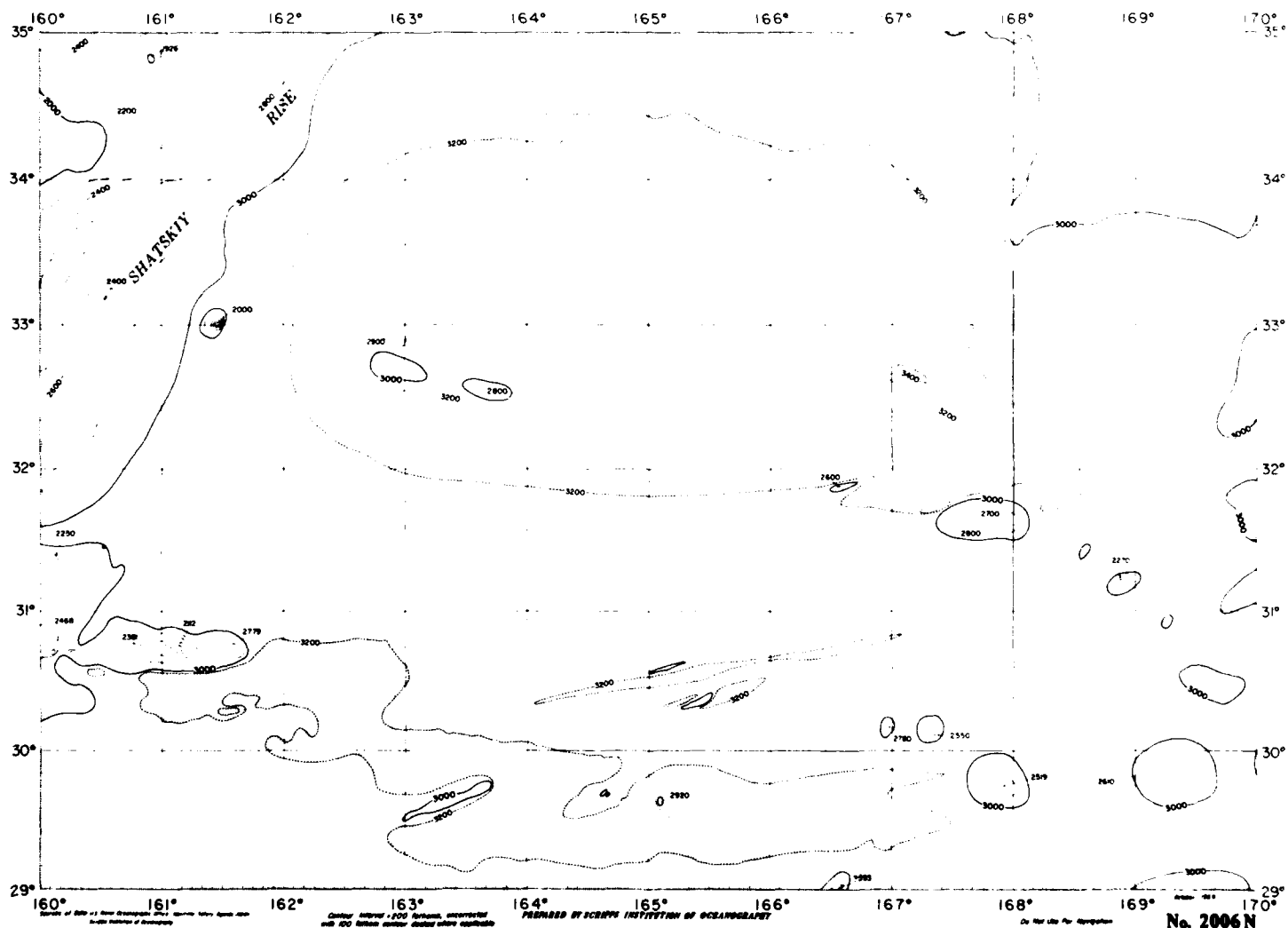
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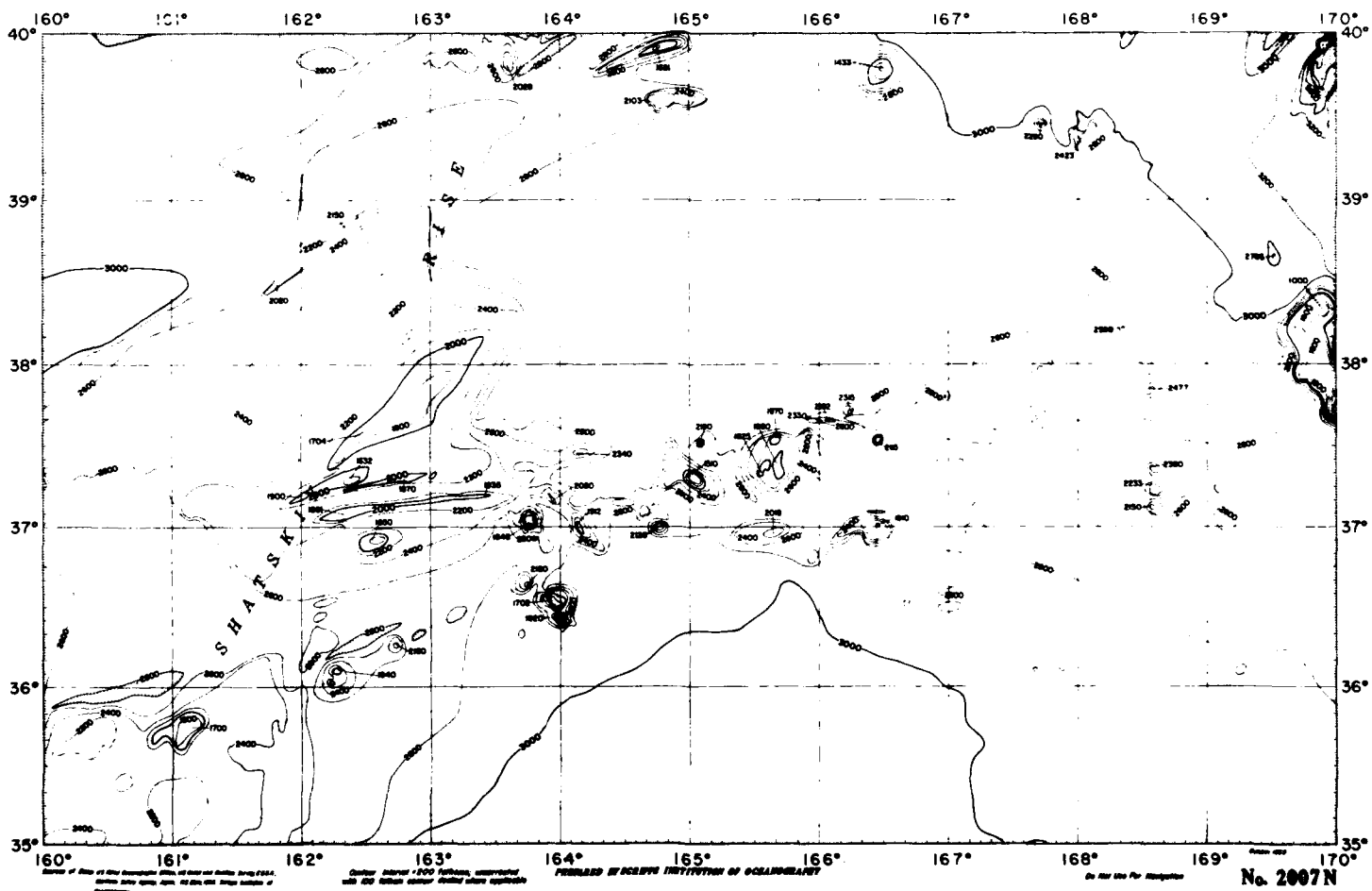


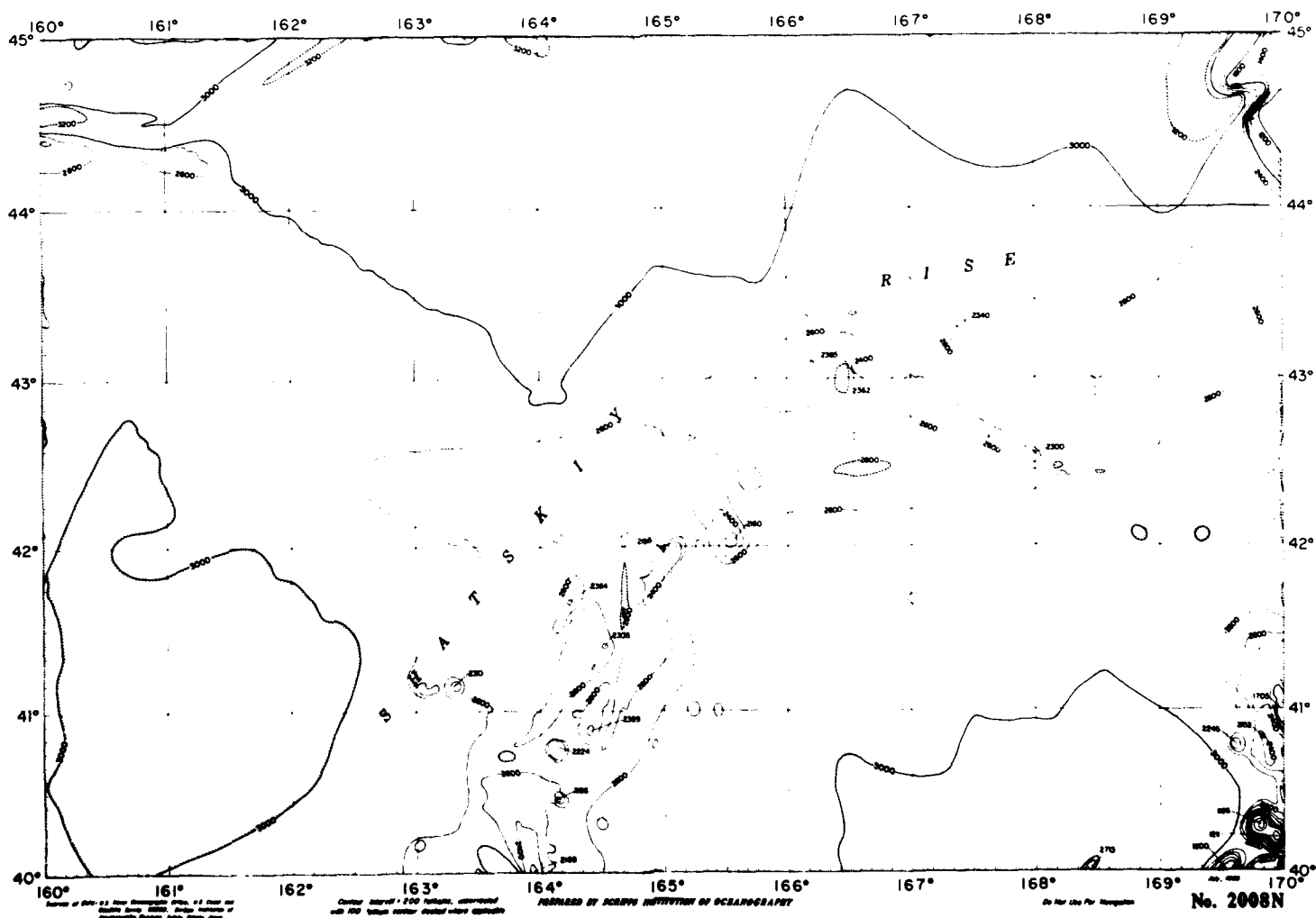


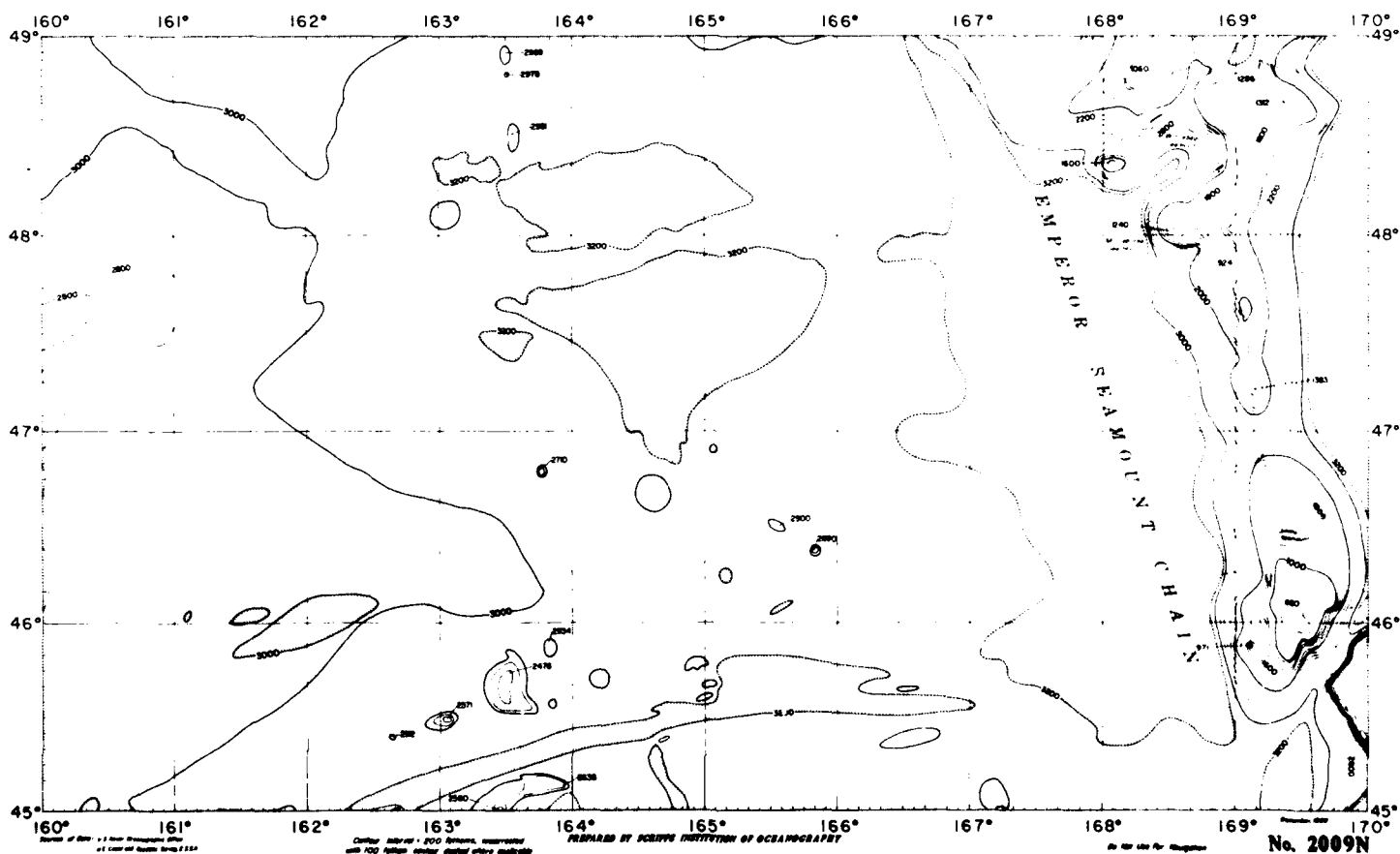


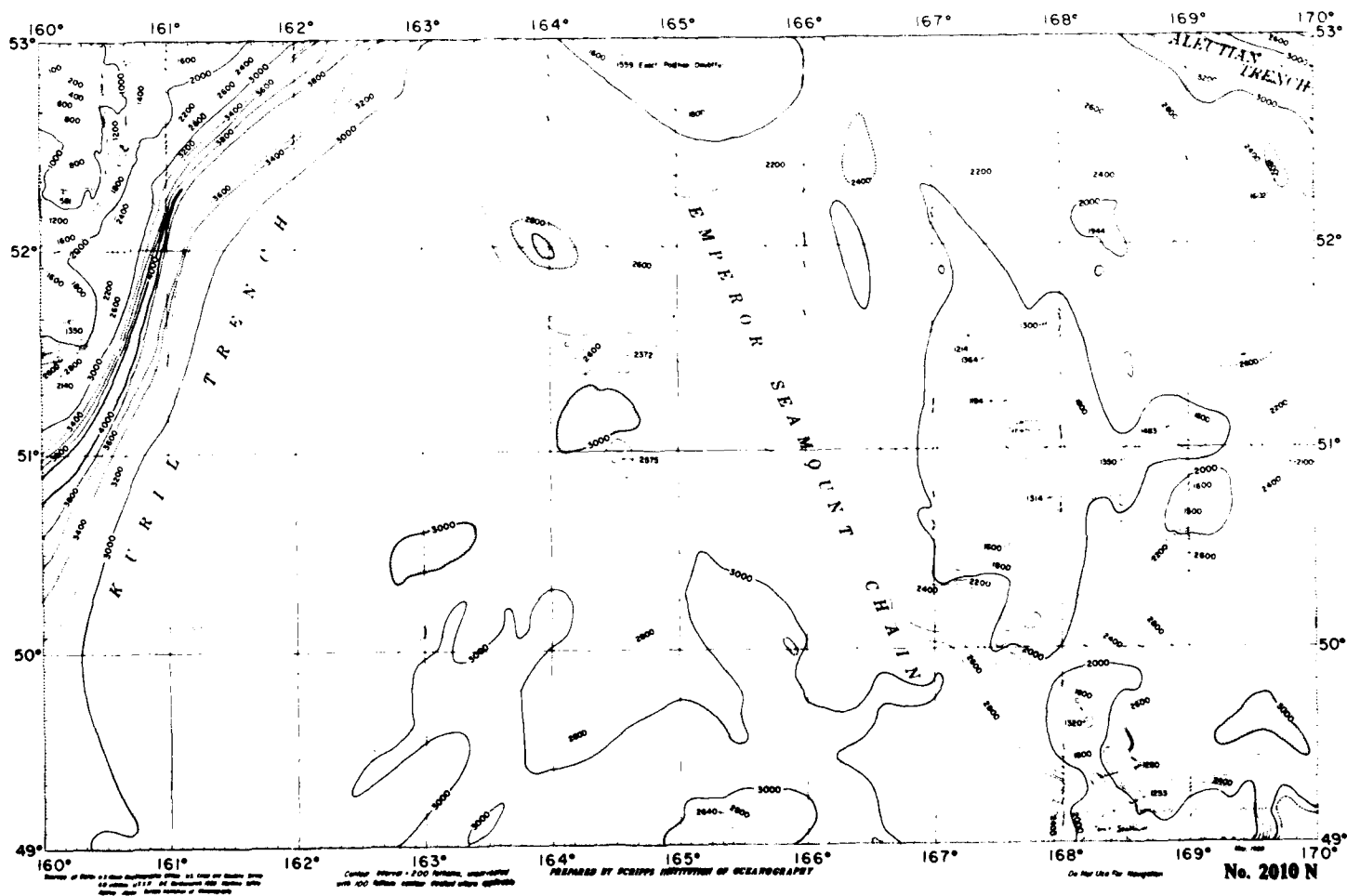


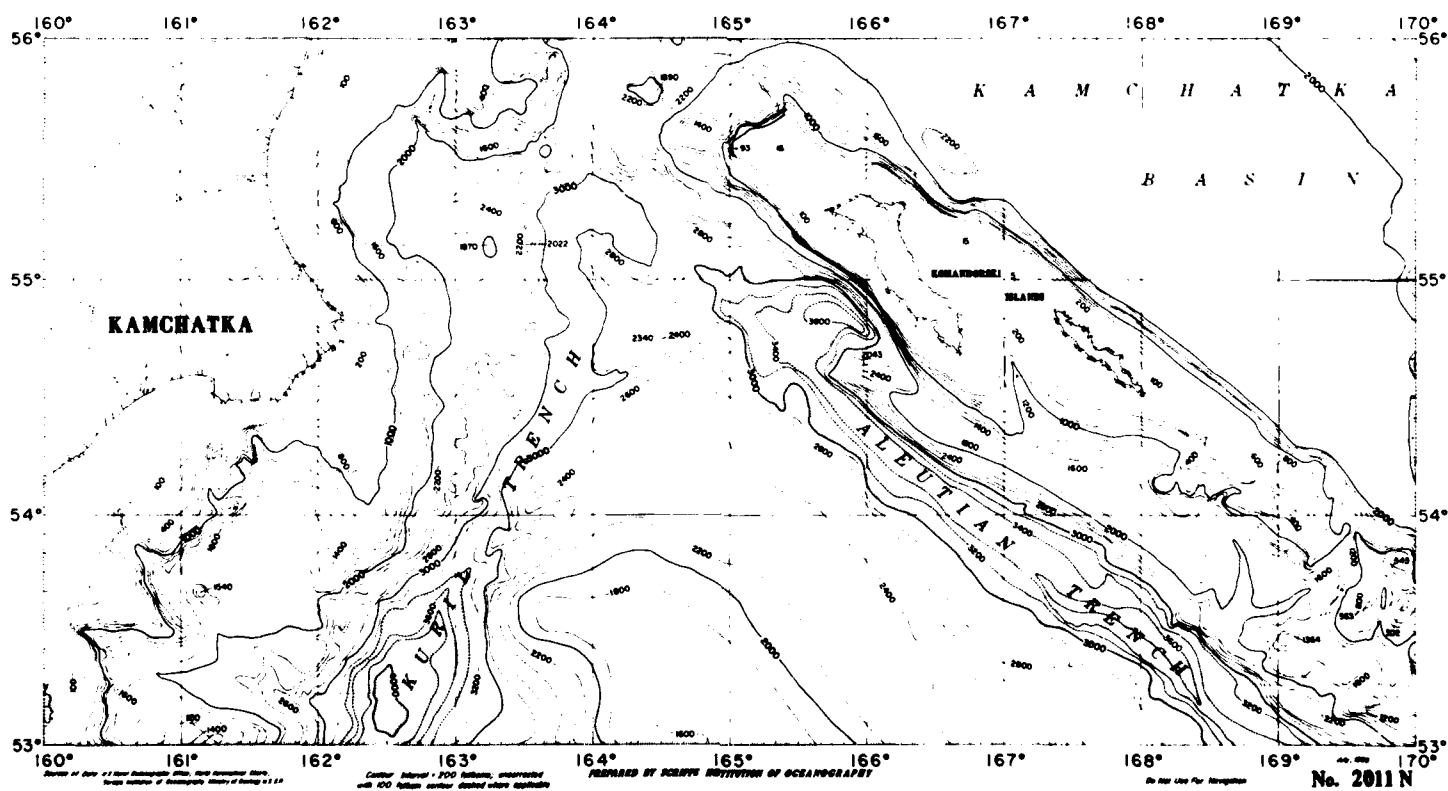


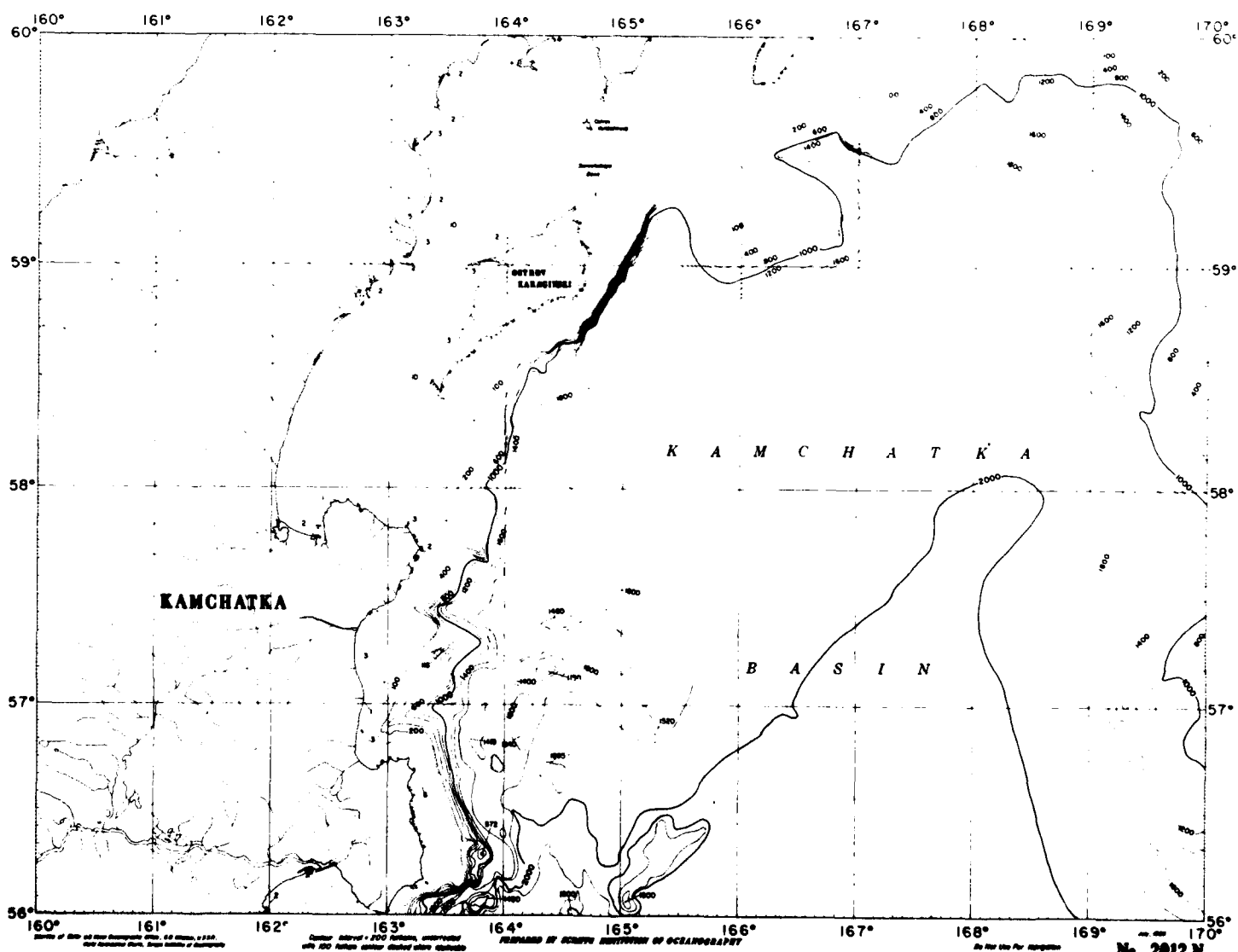


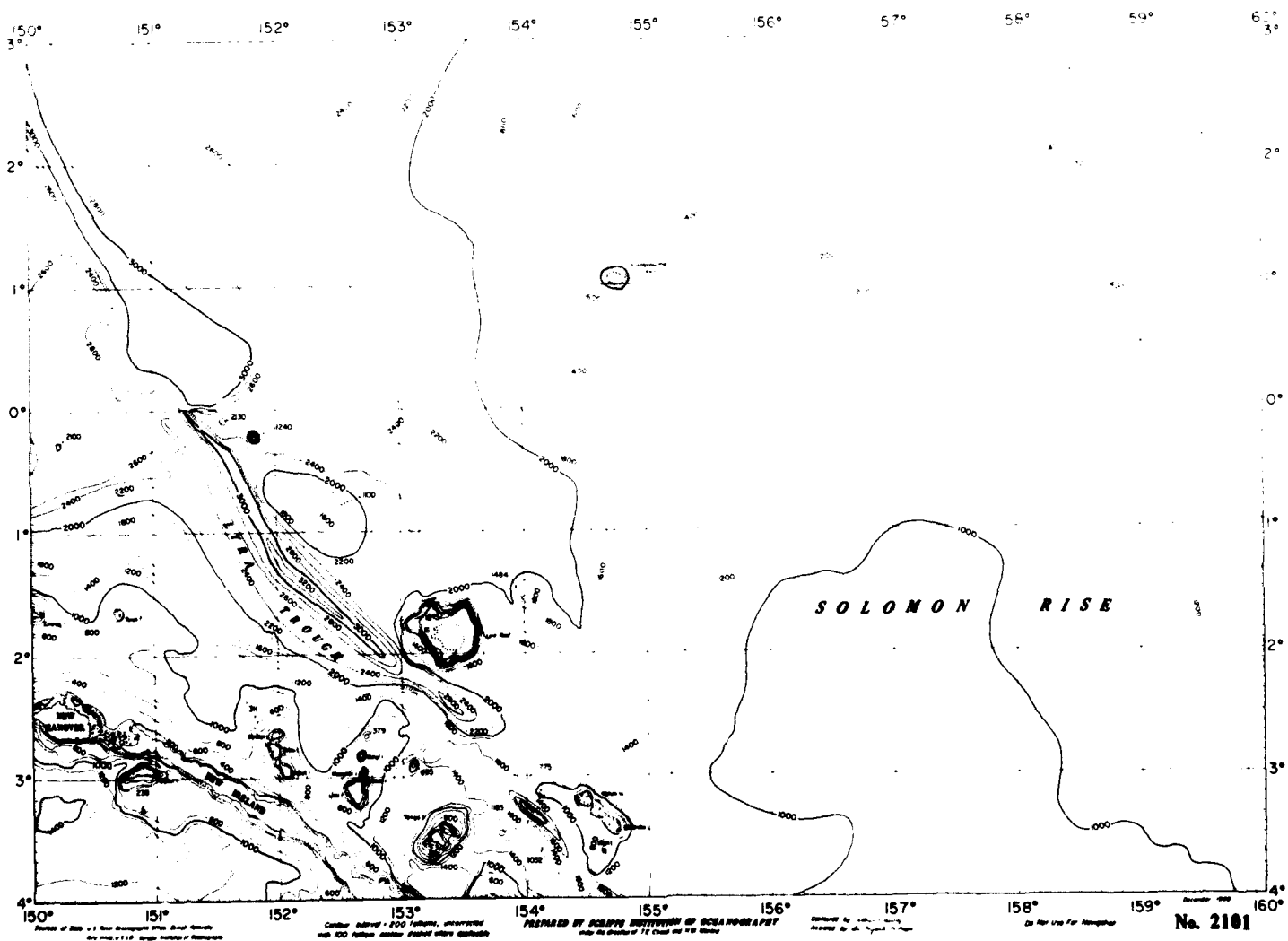


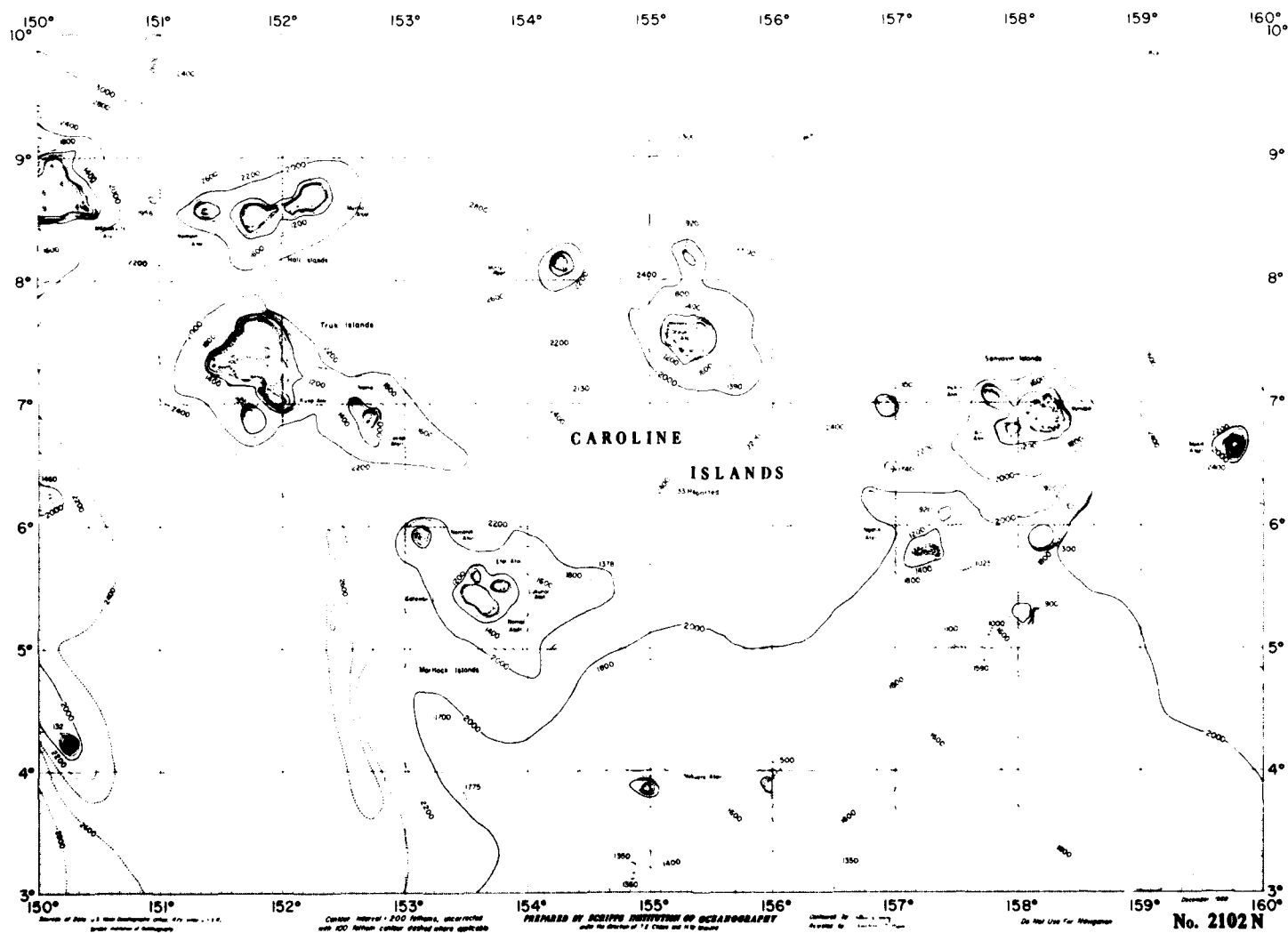


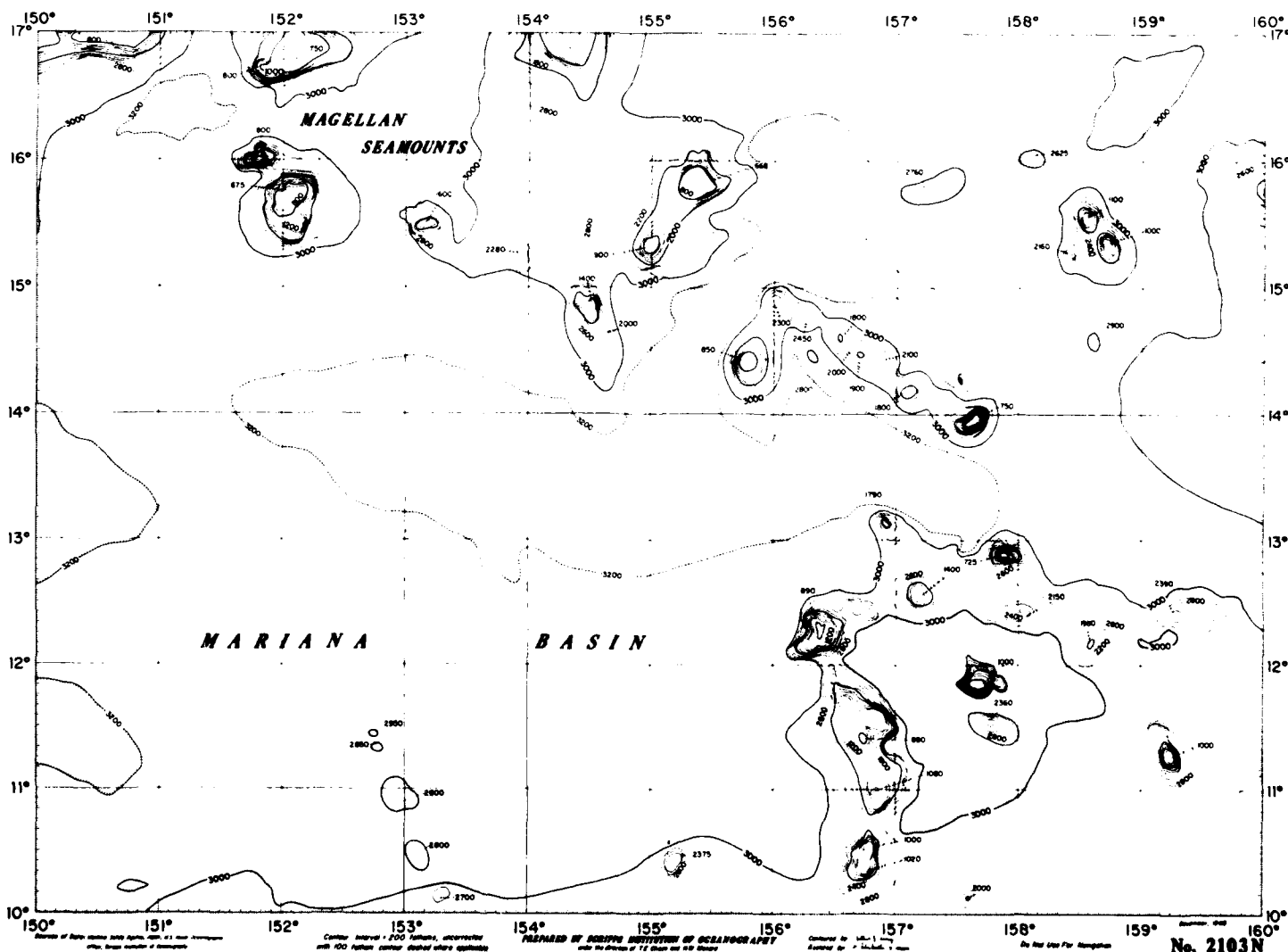


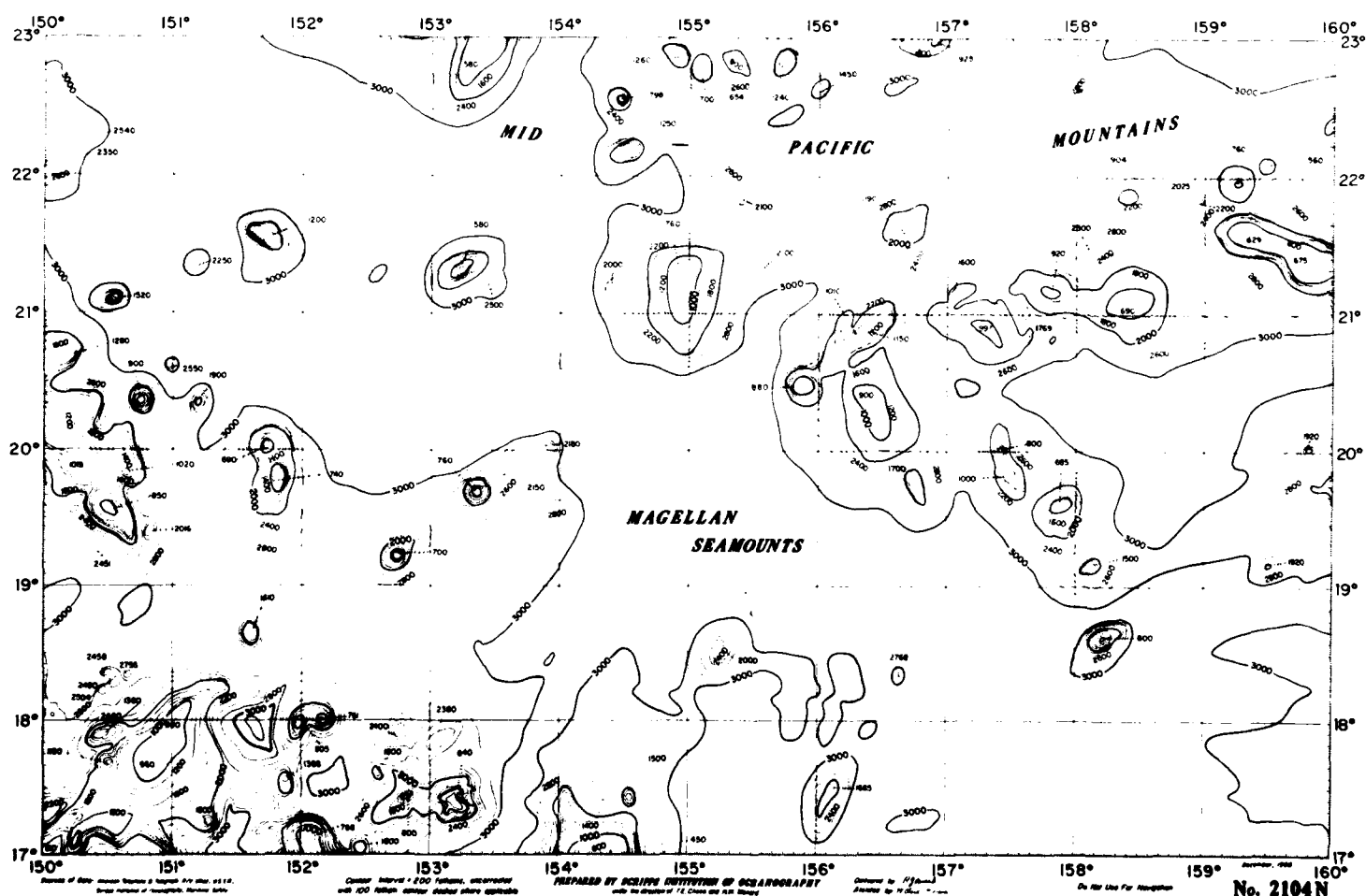


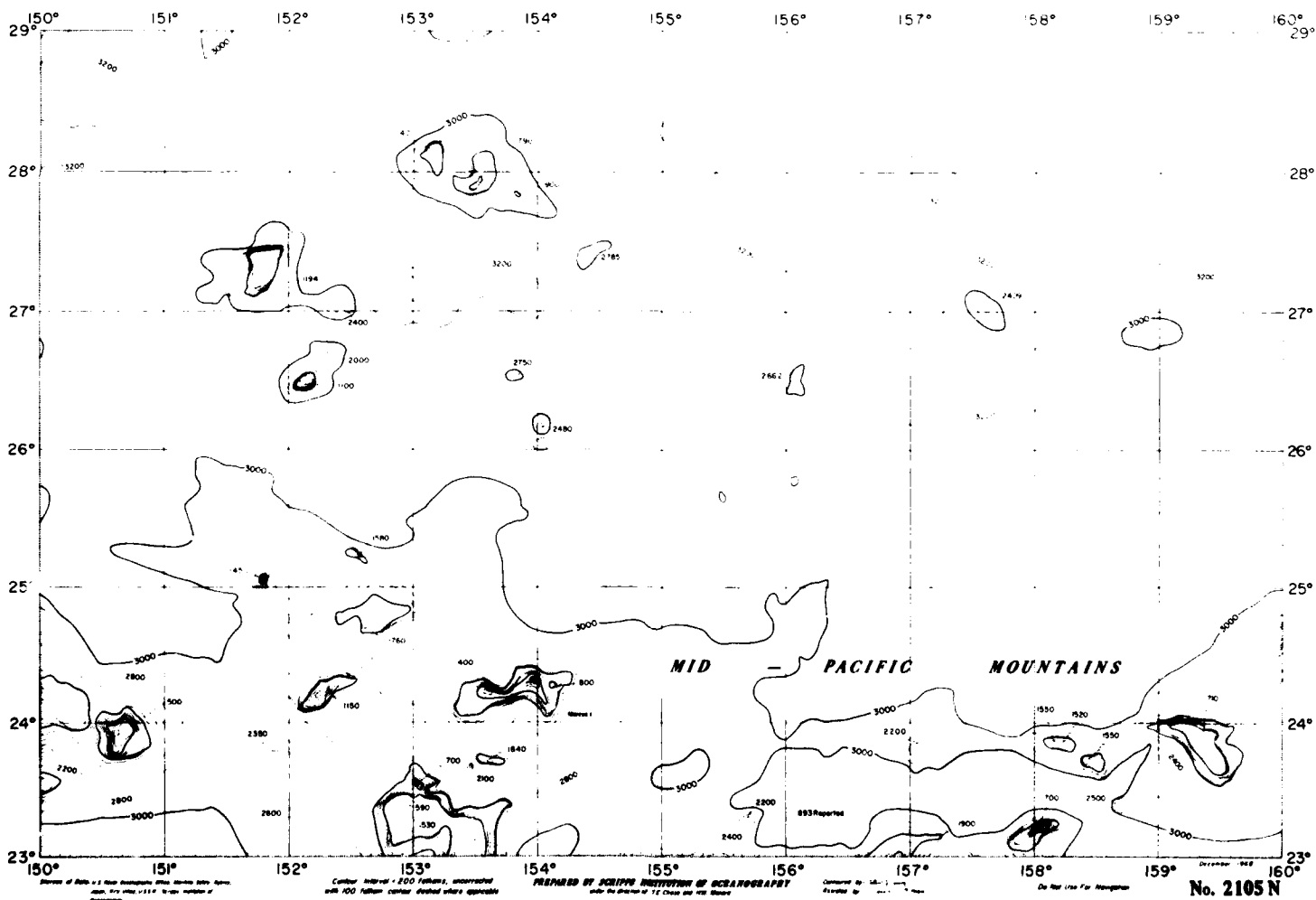


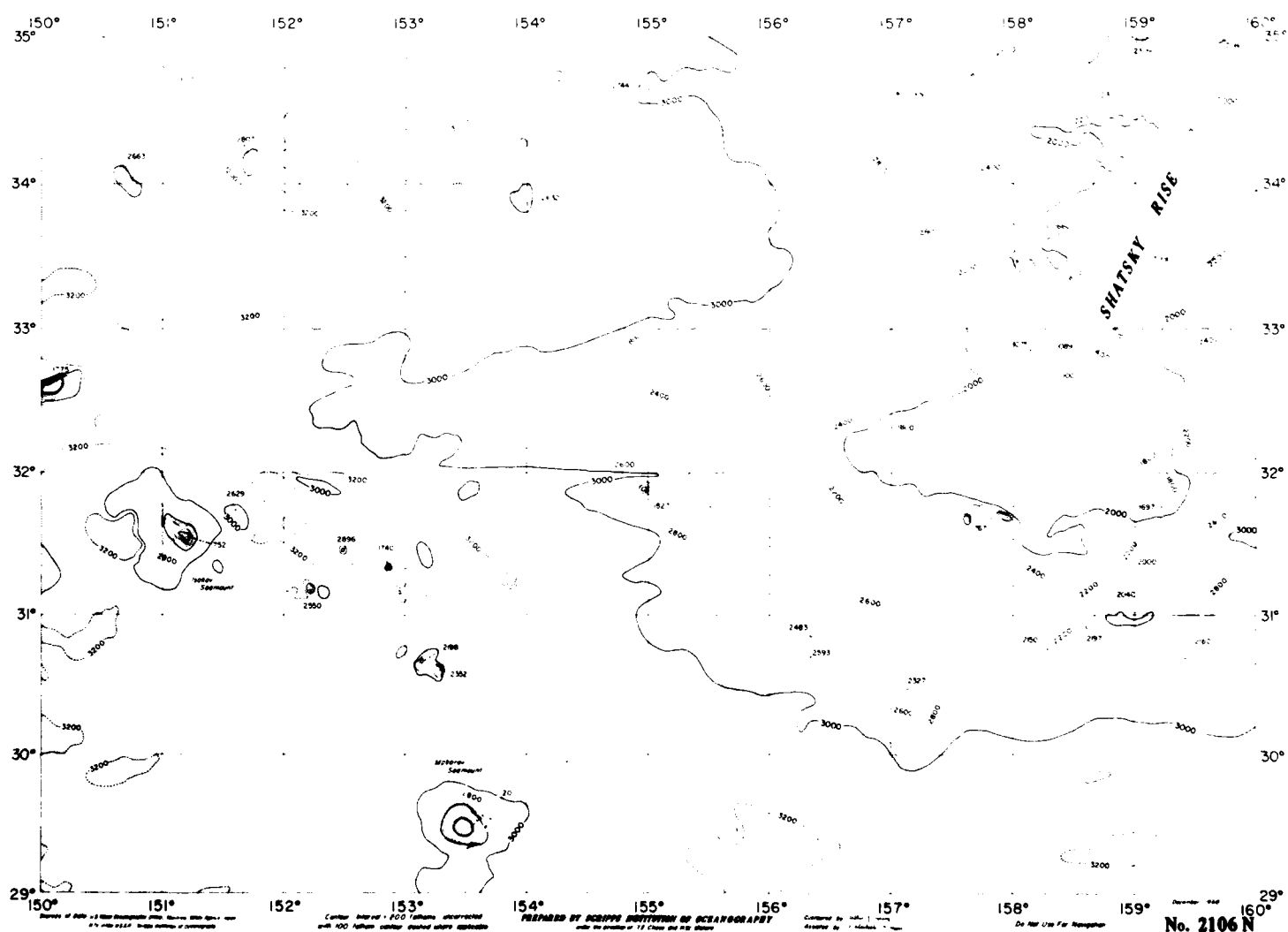


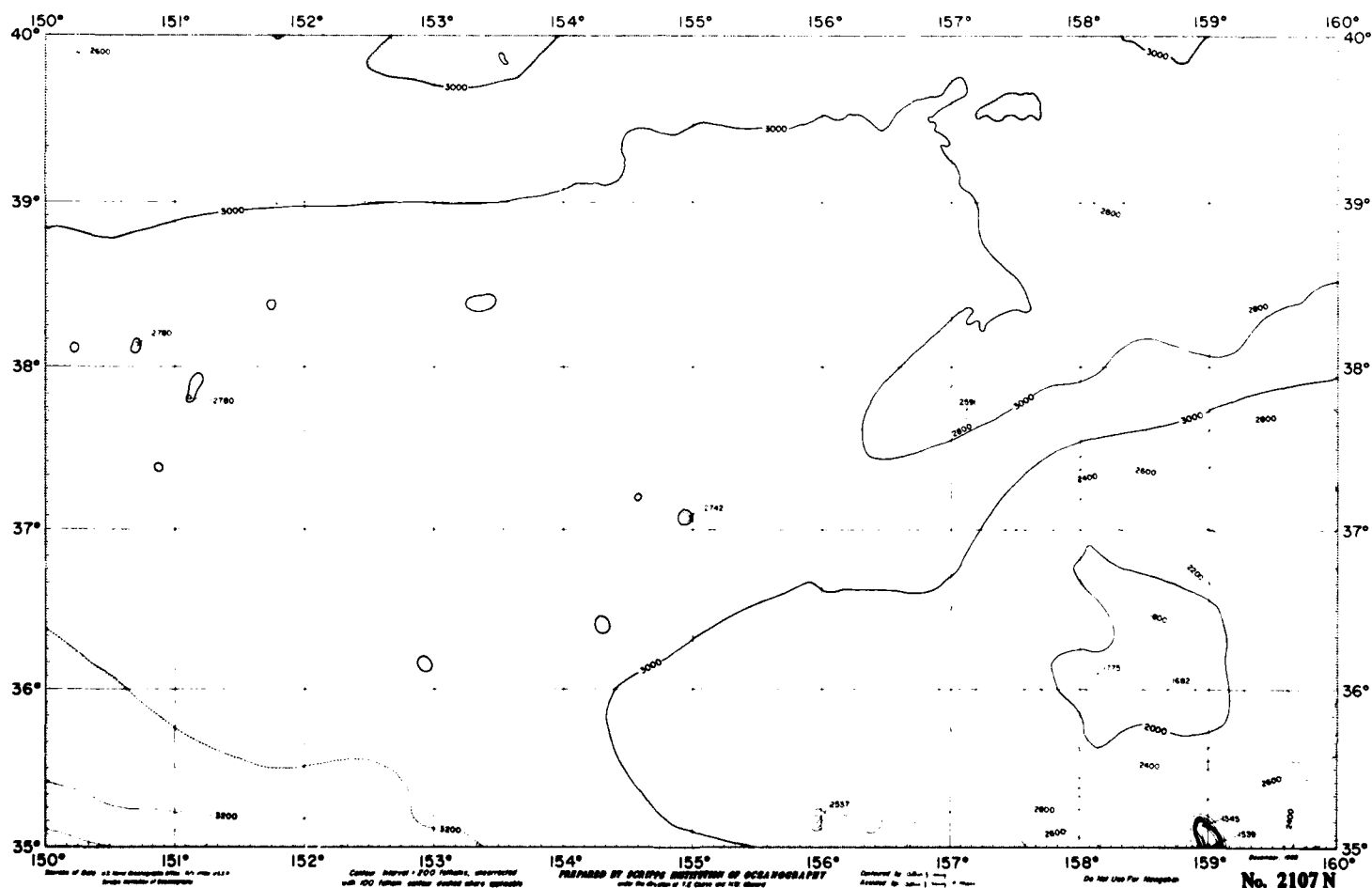


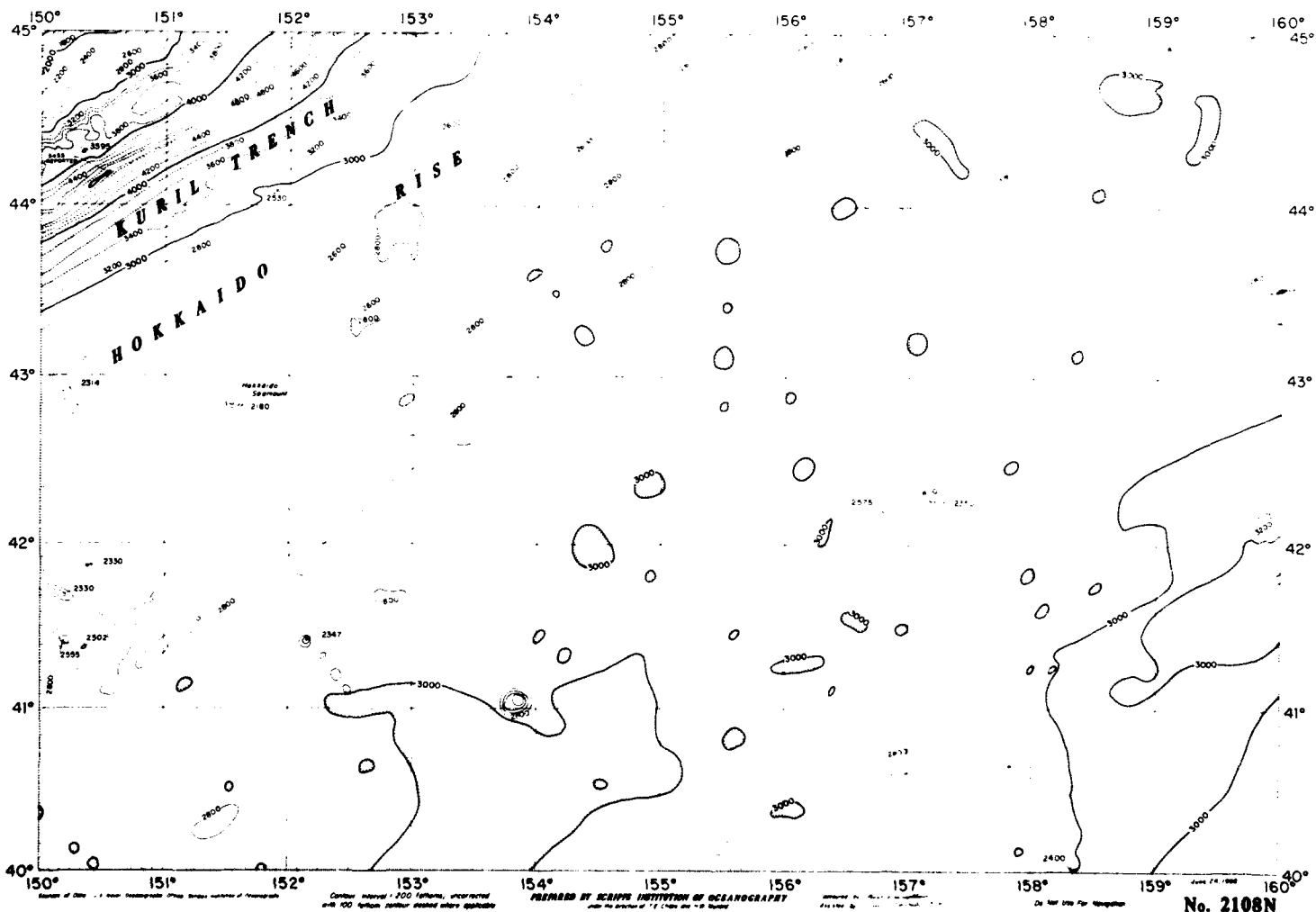




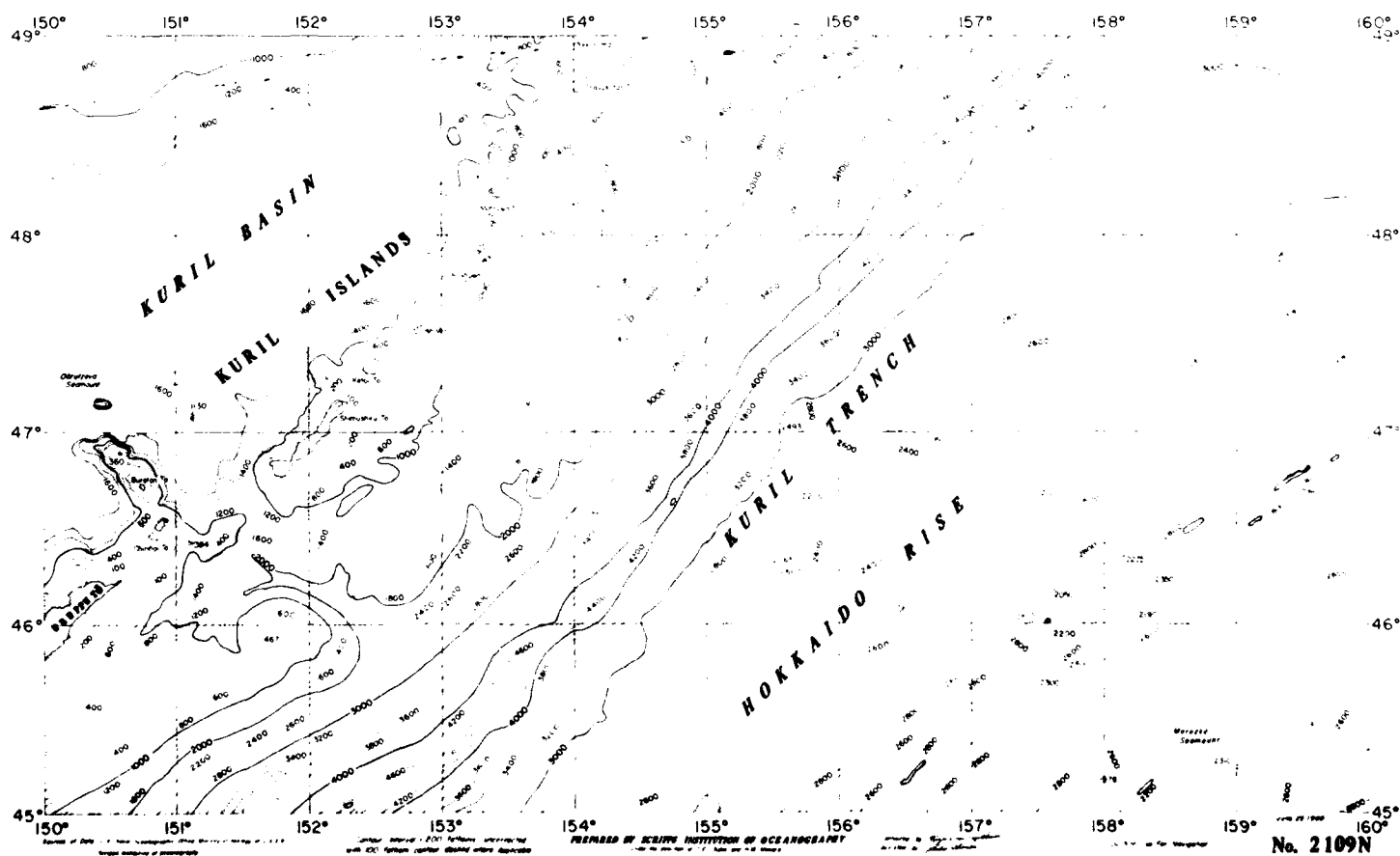


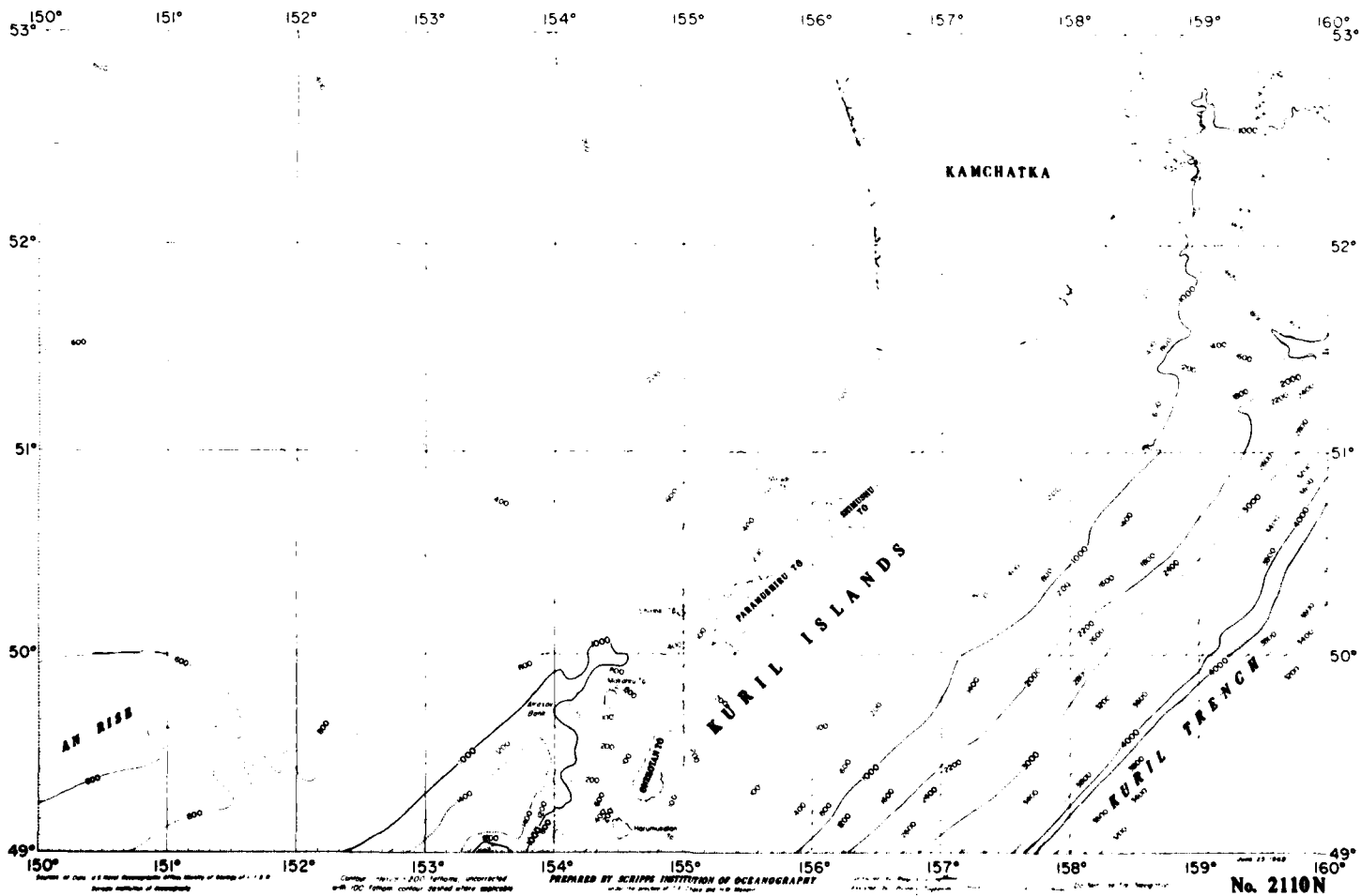


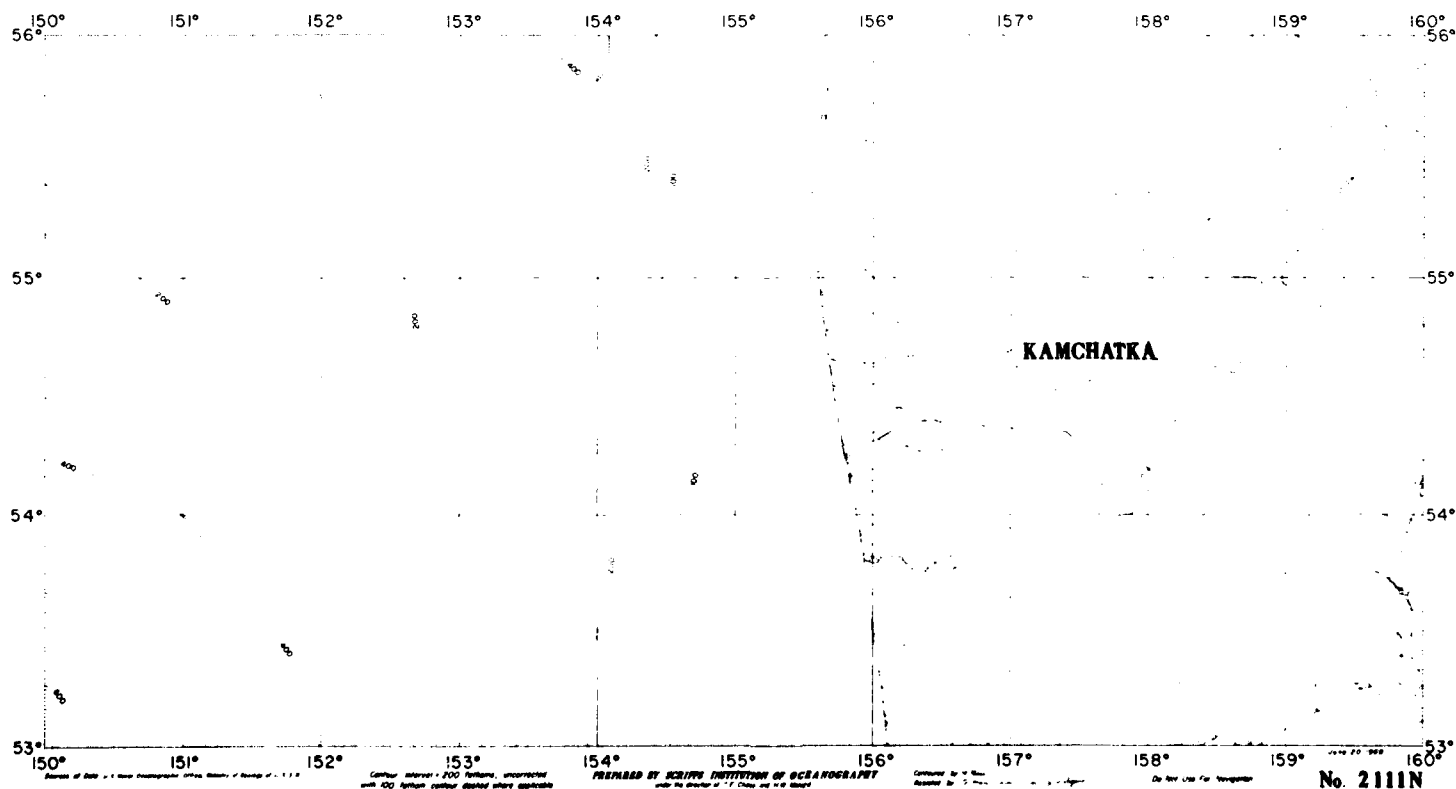


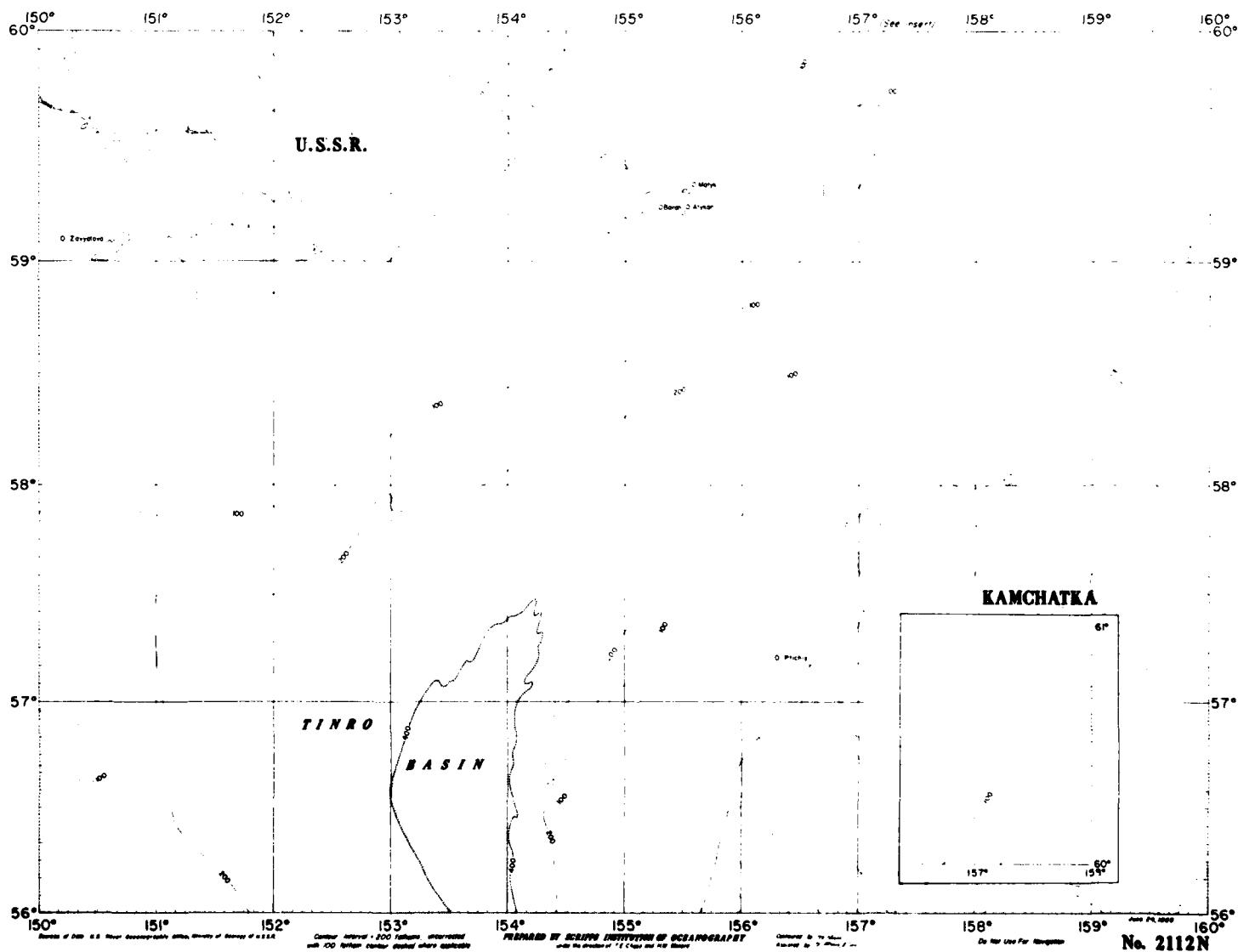


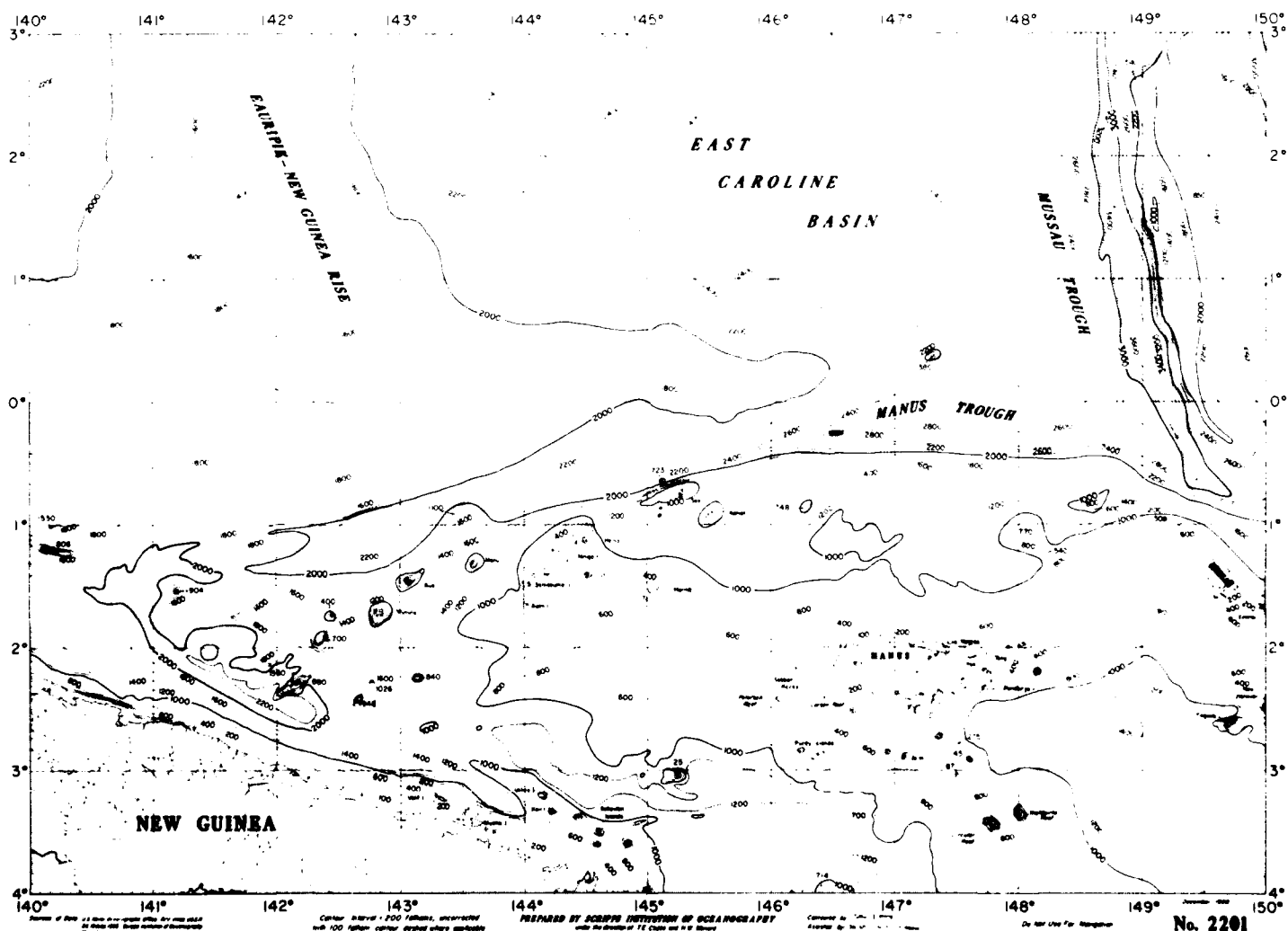
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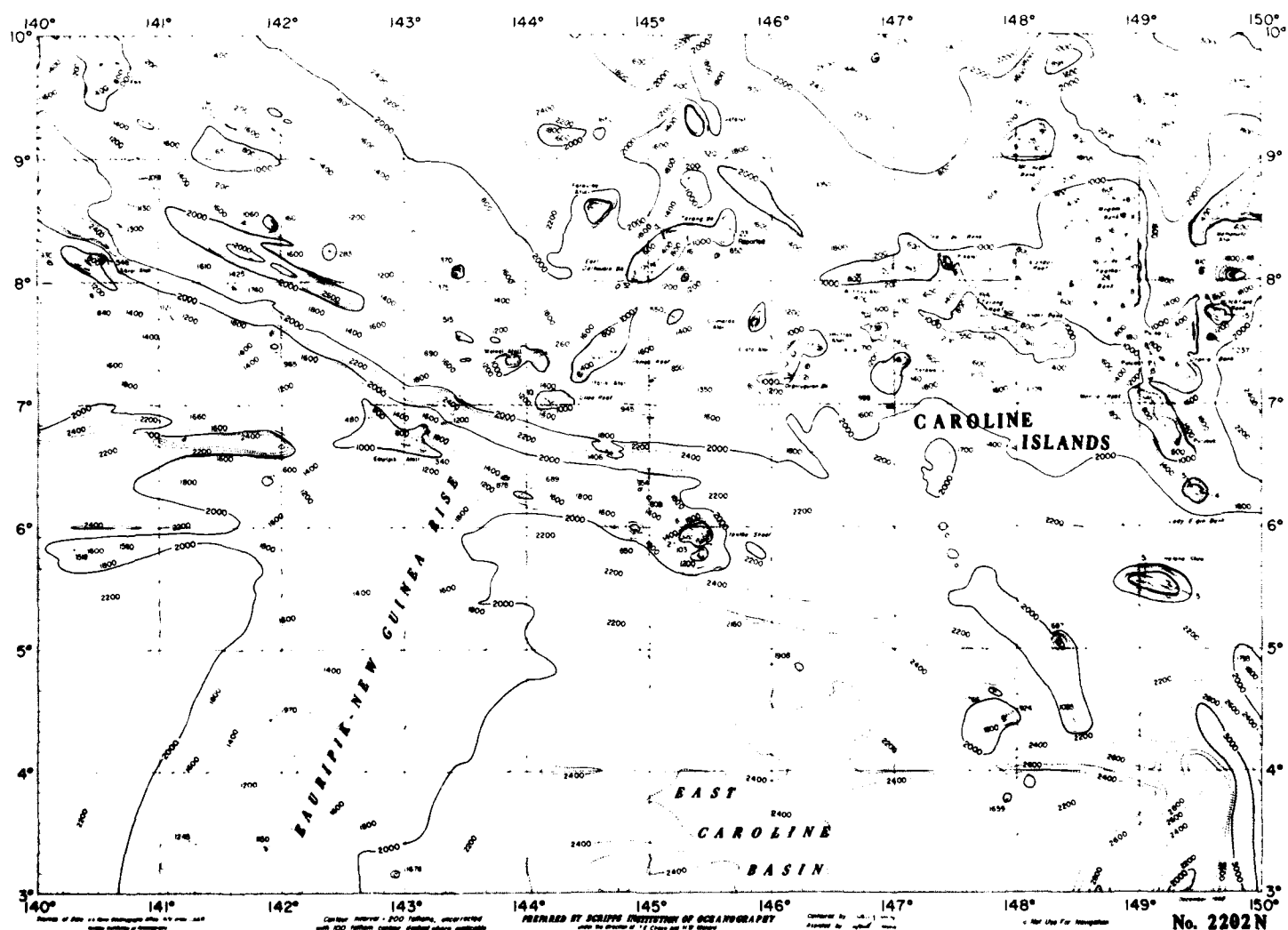


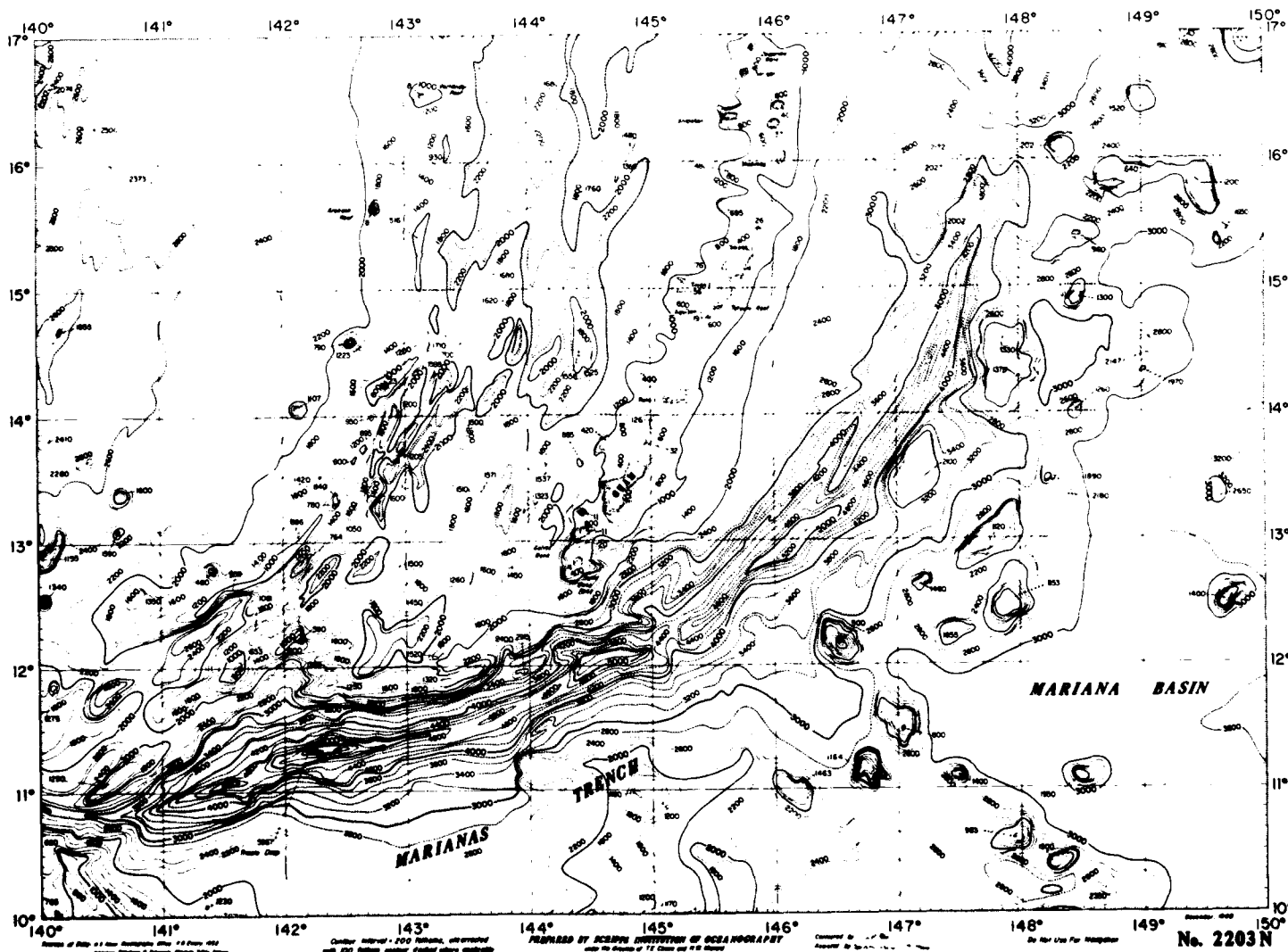


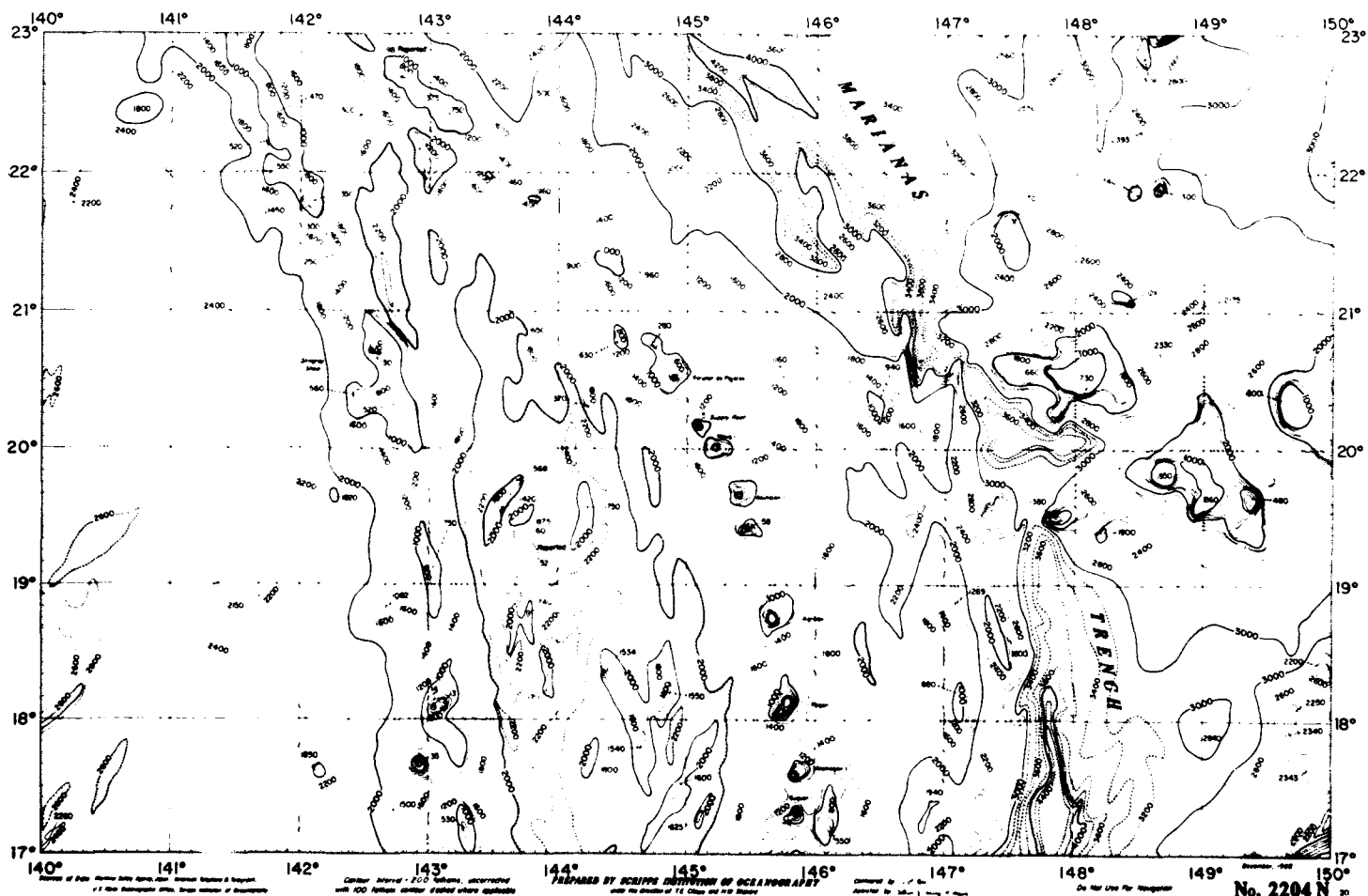


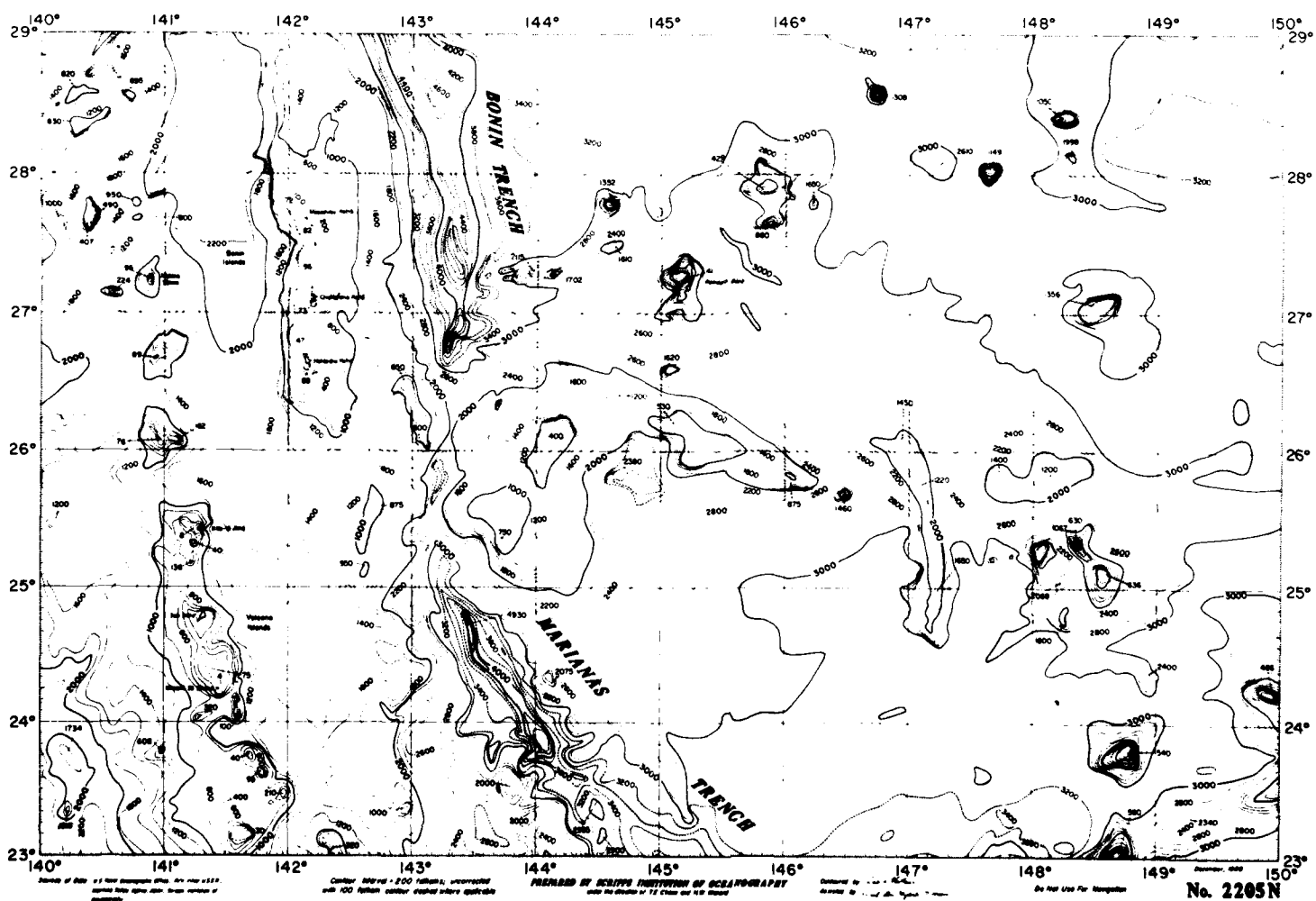


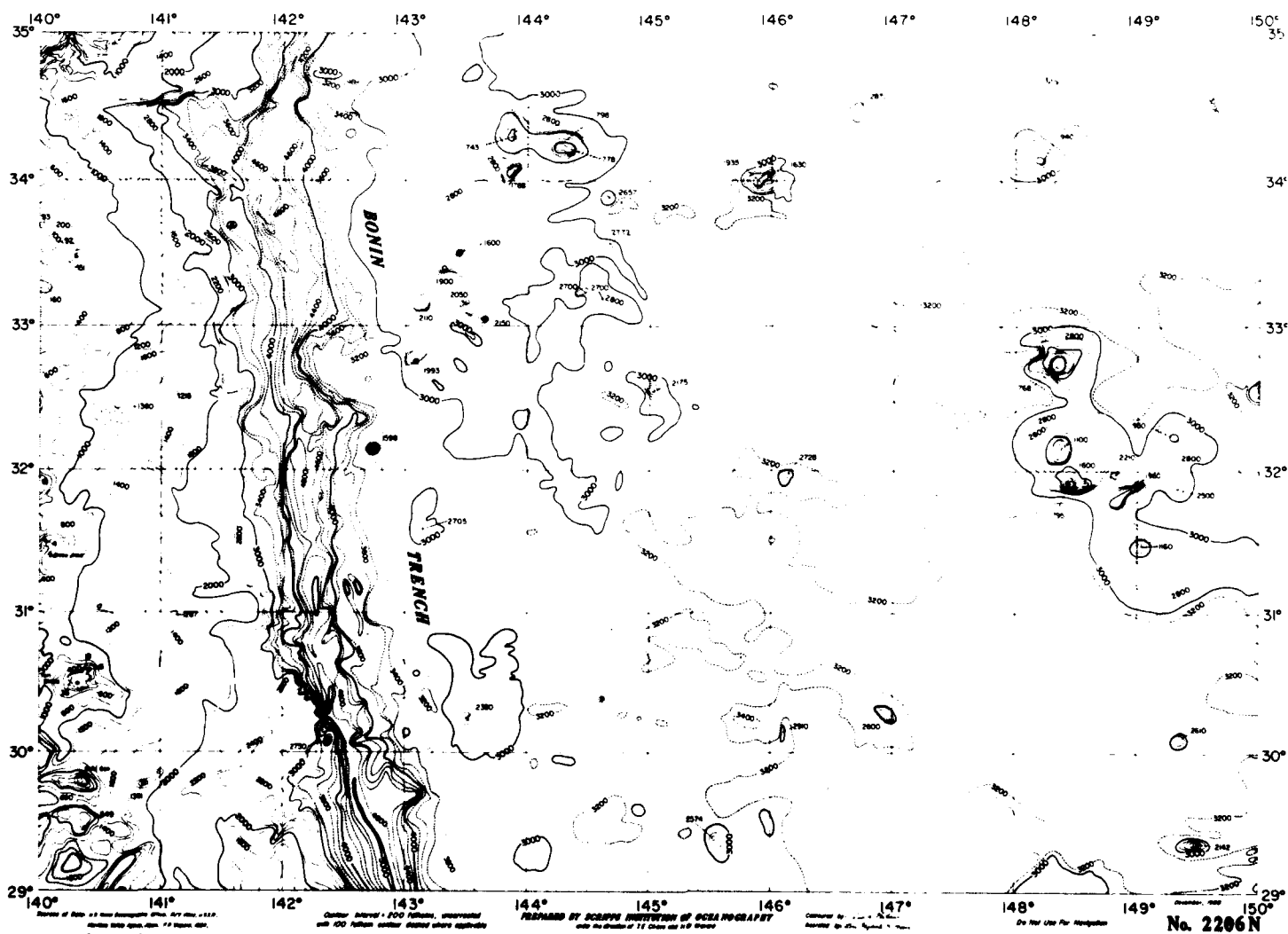
Scale of 1:100,000. Contour interval: 200 fathoms, uncorrected. Prepared by Scripps Institution of Oceanography. No. 2201

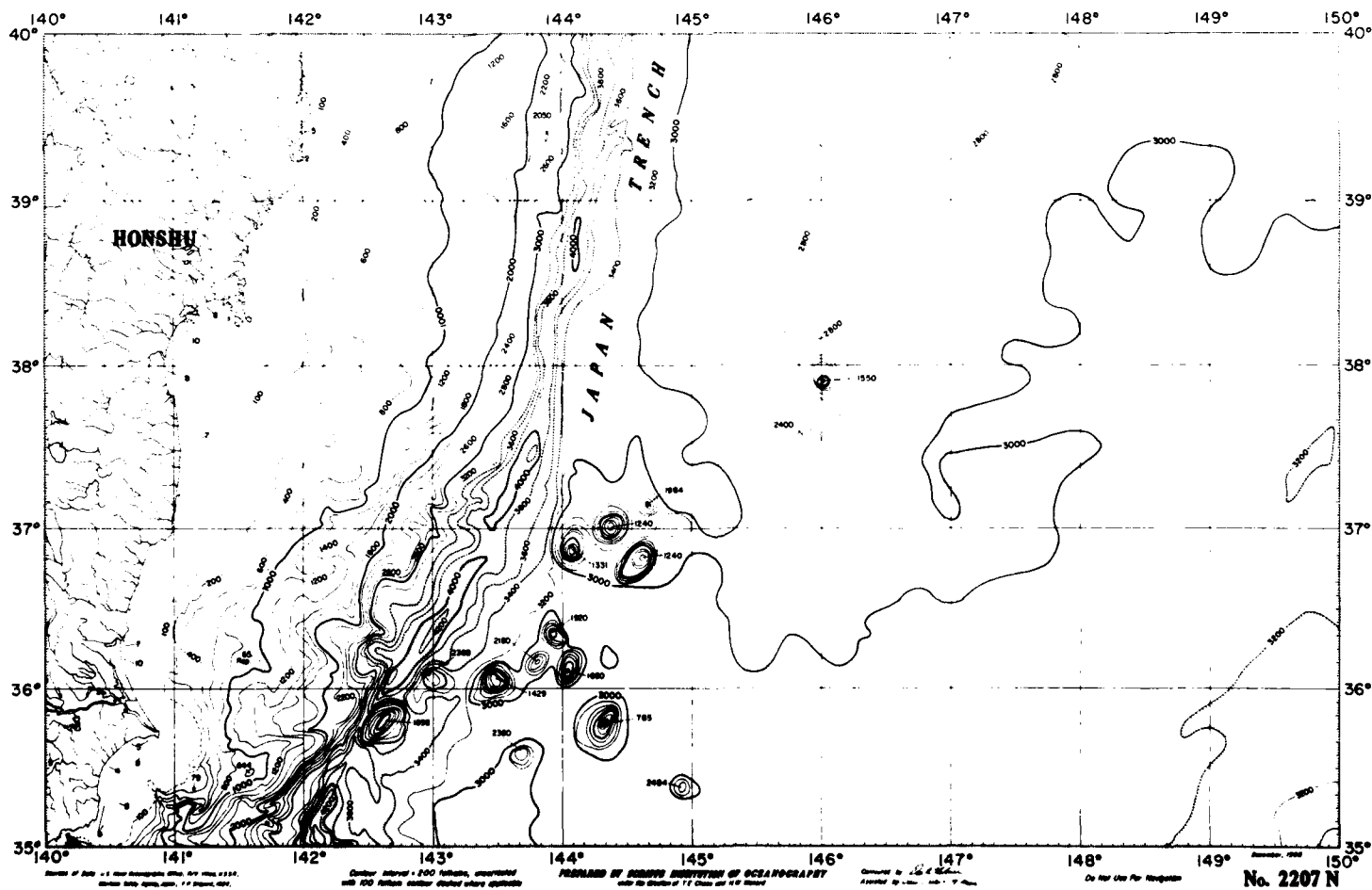


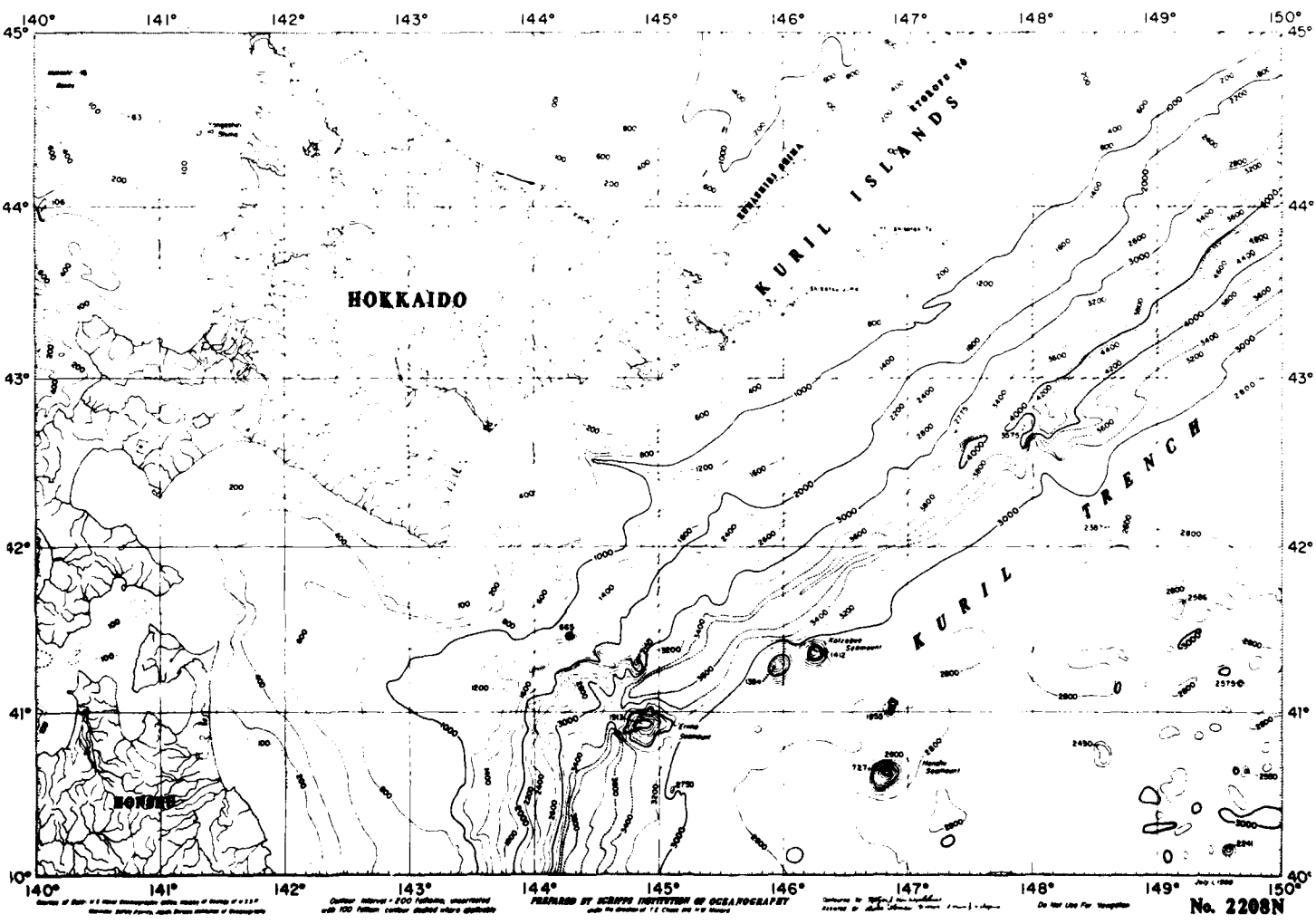


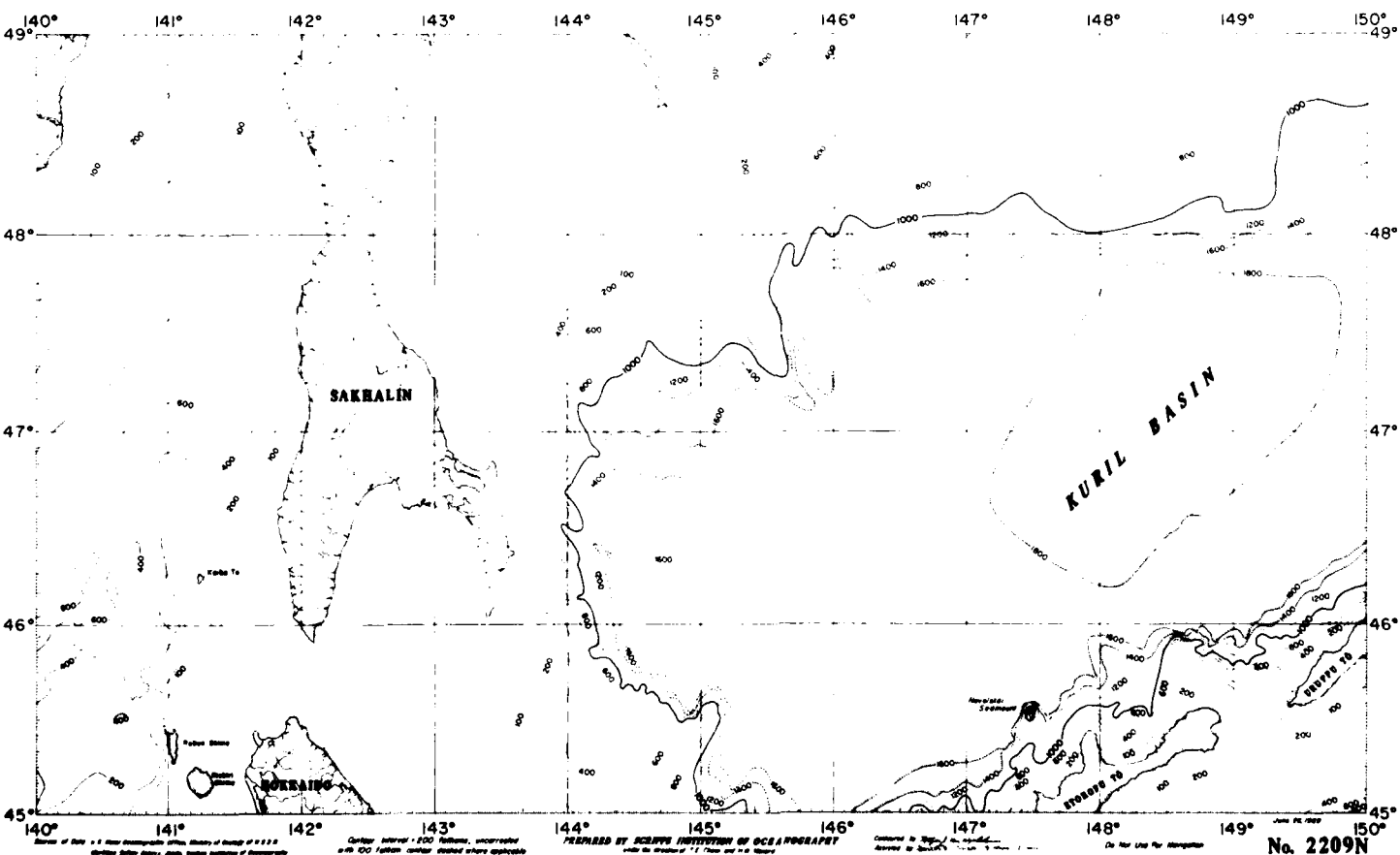




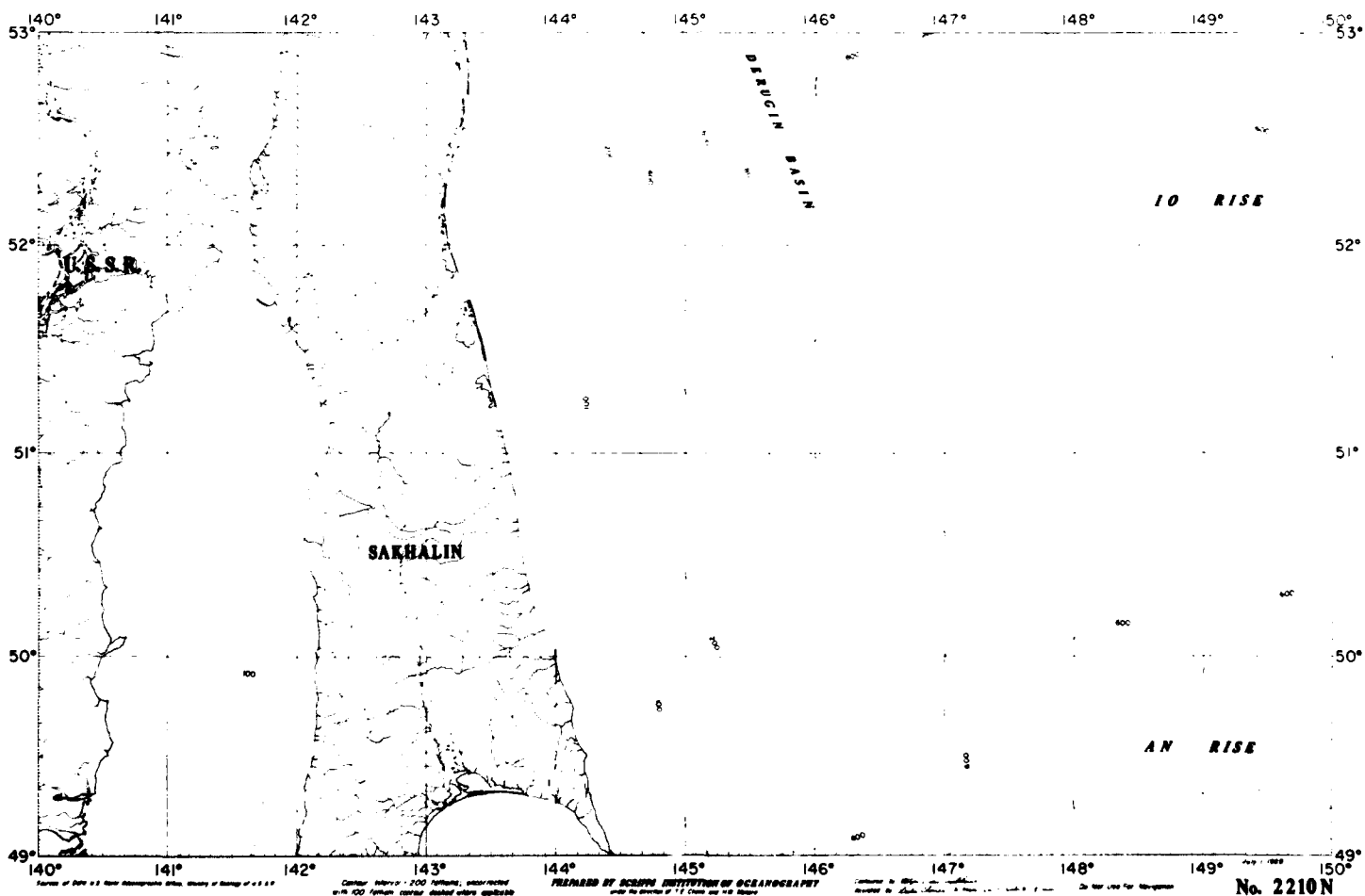


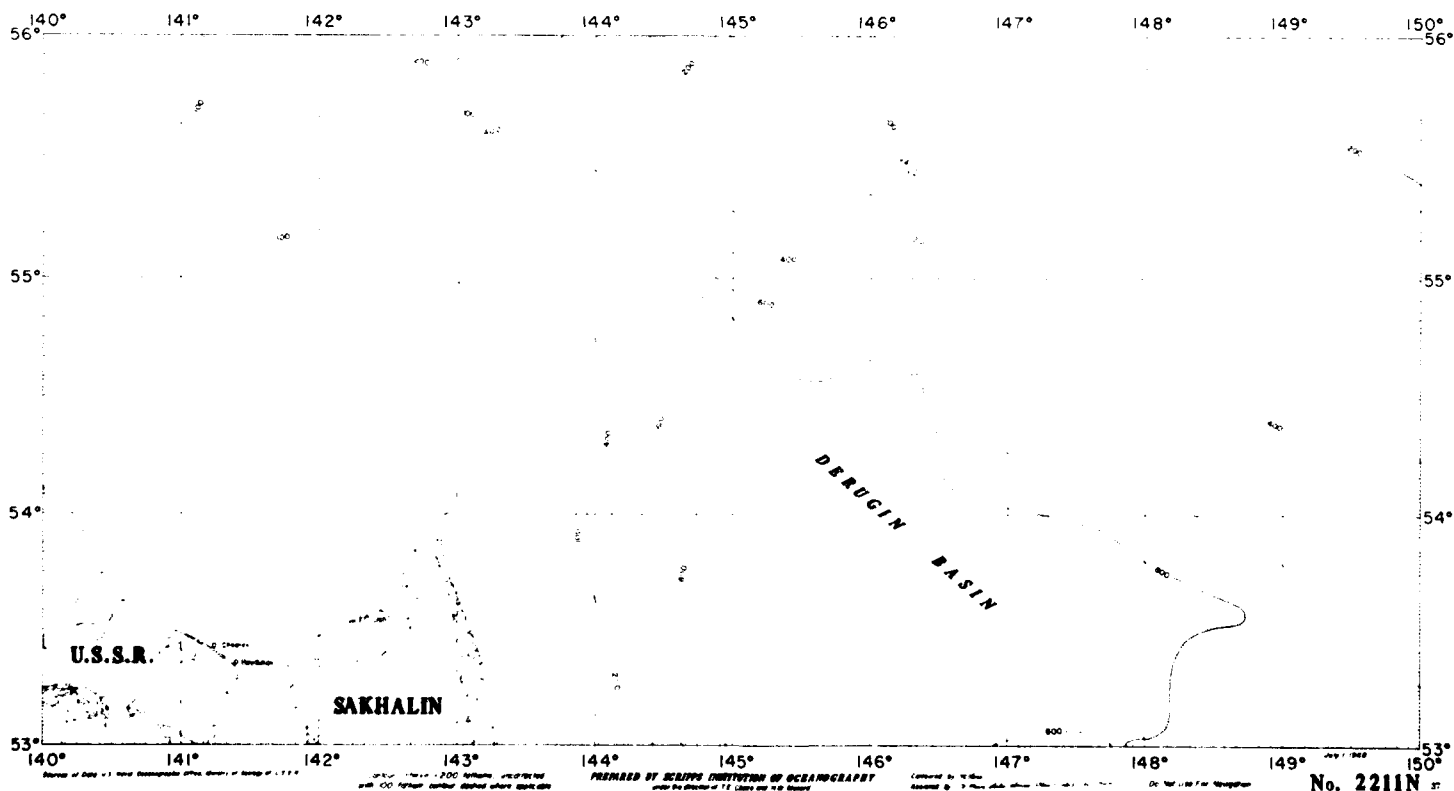


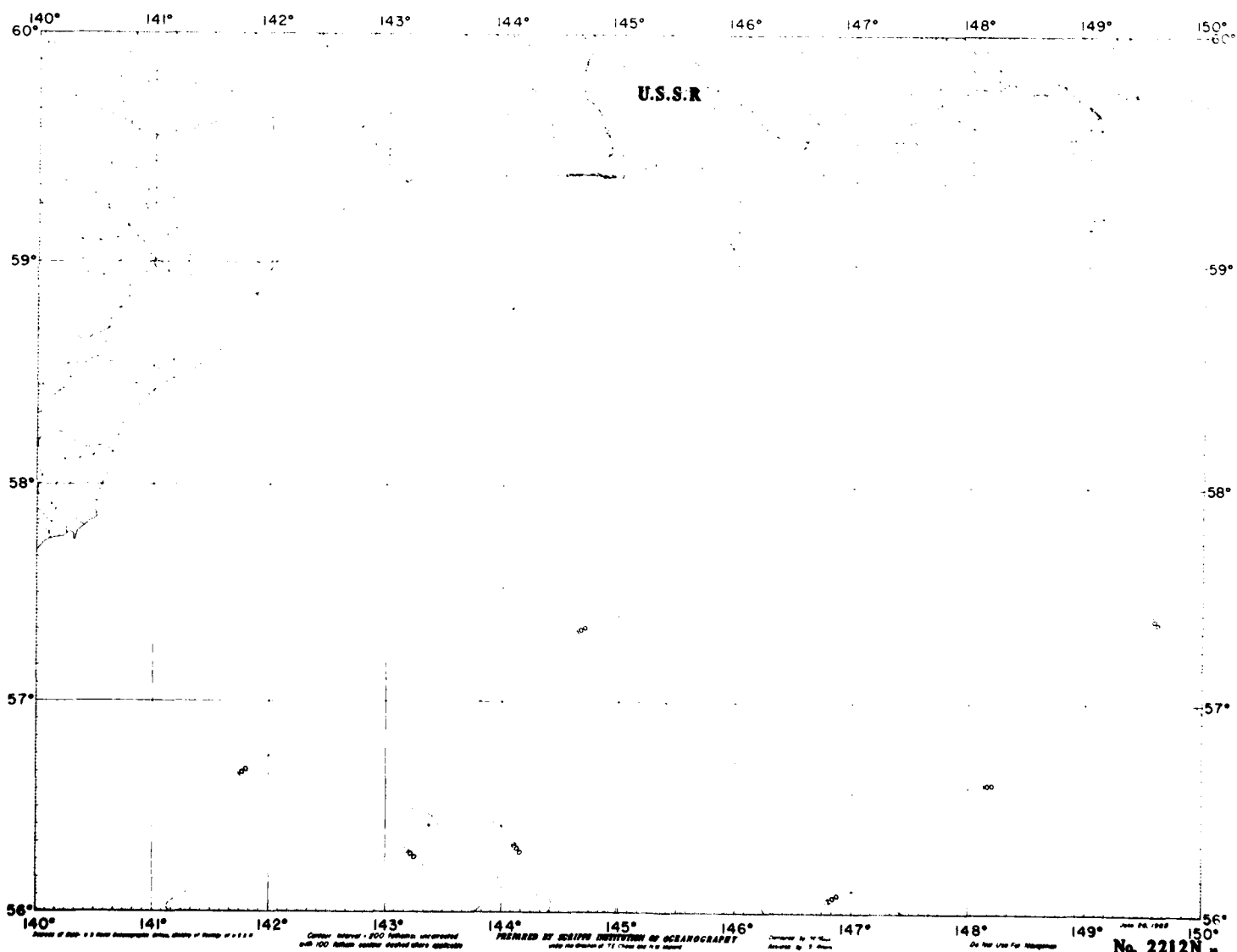


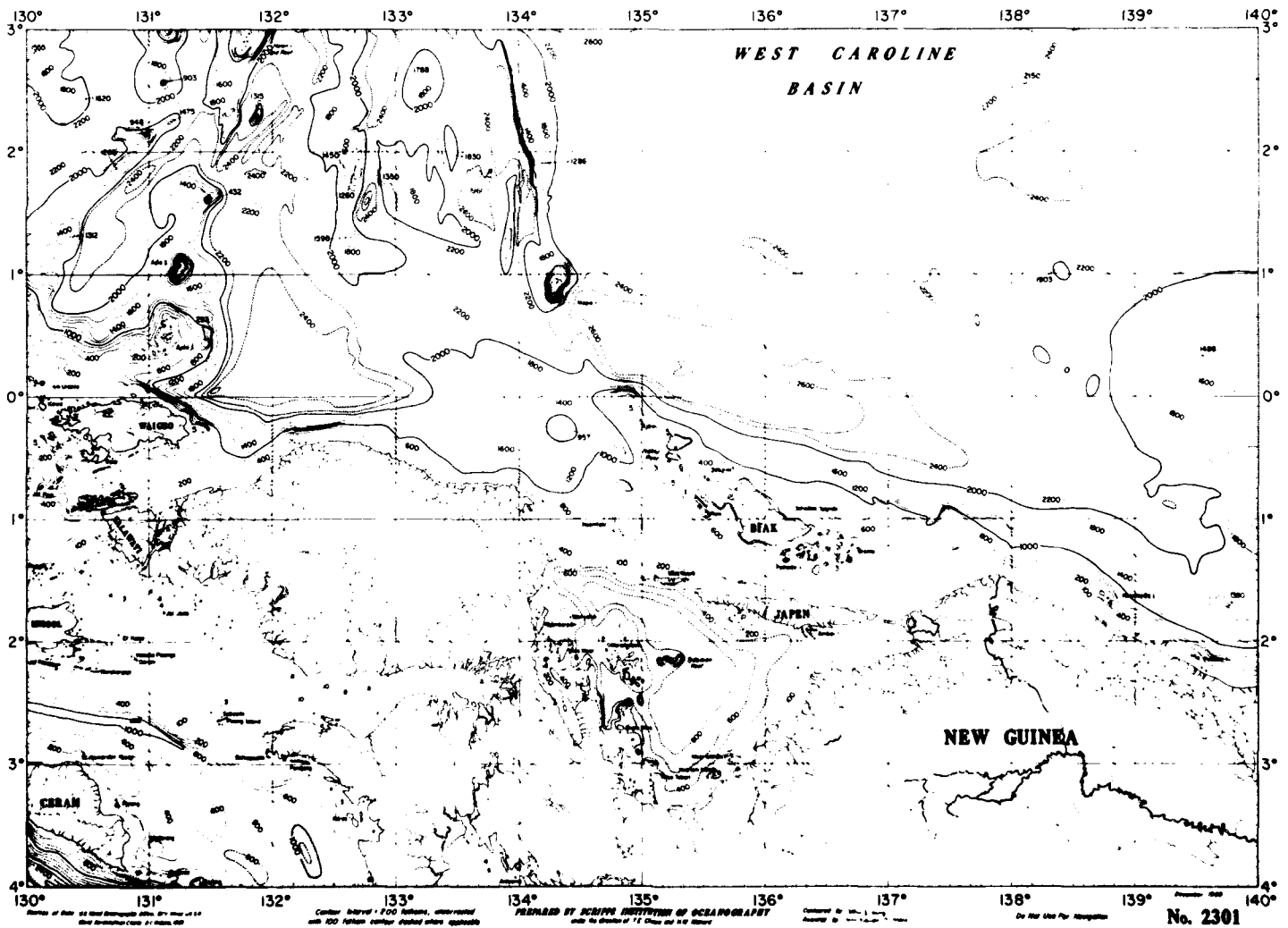


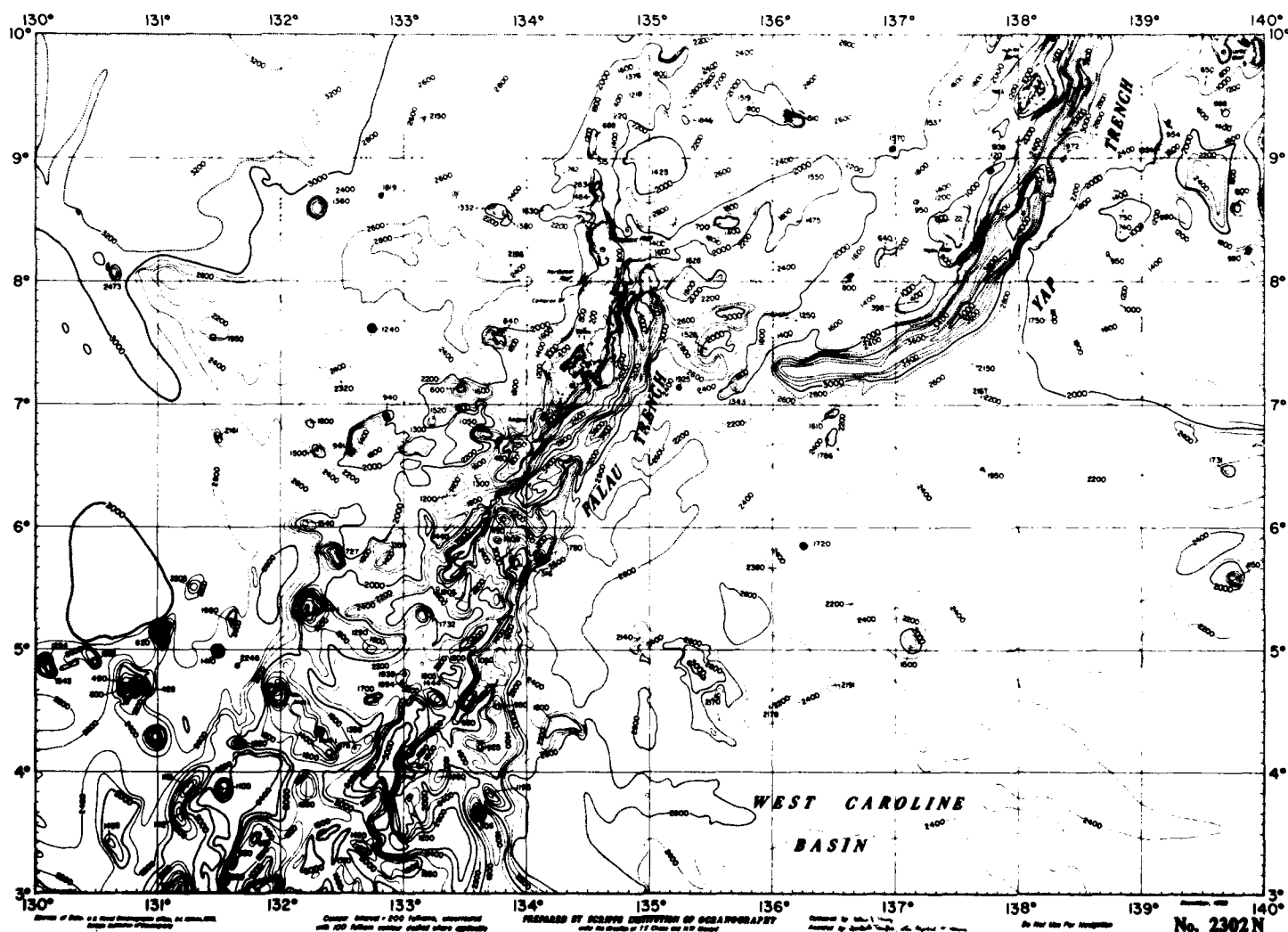
Source of Data: U.S. Navy Hydrographic Office, Bureau of Oceanography, U.S. Navy  
Chart: Interval: 200 Fathoms, uncorrected  
with 100 Fathoms contour shaded where applicable  
PREPARED BY NAVAL INSTITUTE OF OCEANOGRAPHY  
under the direction of J. J. Thayer and J. H. Moore  
Continued to Sheet 2209N, if applicable  
Revised by Bureau of Oceanography, U.S. Navy  
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June 1958  
No. 2209N

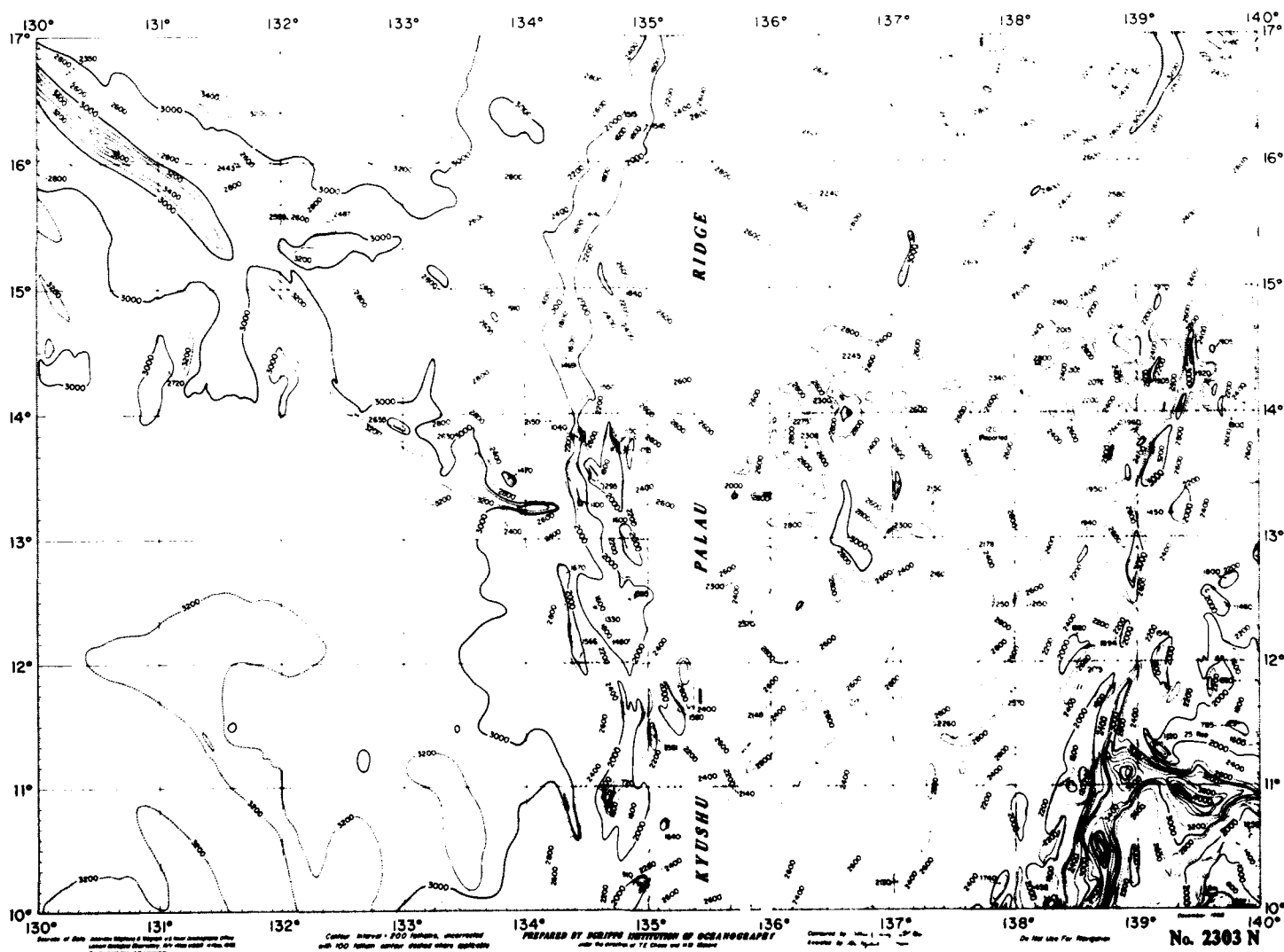


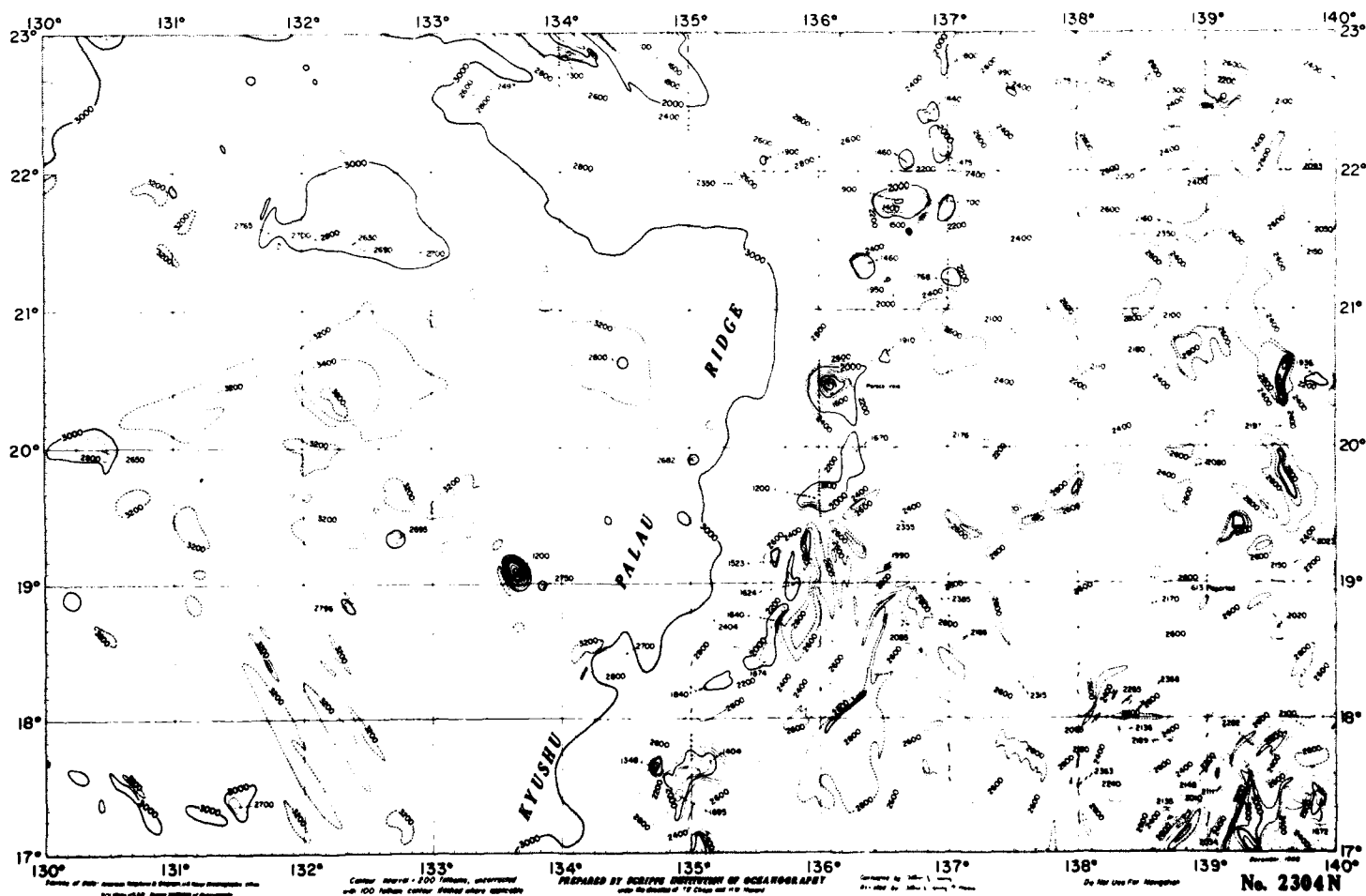


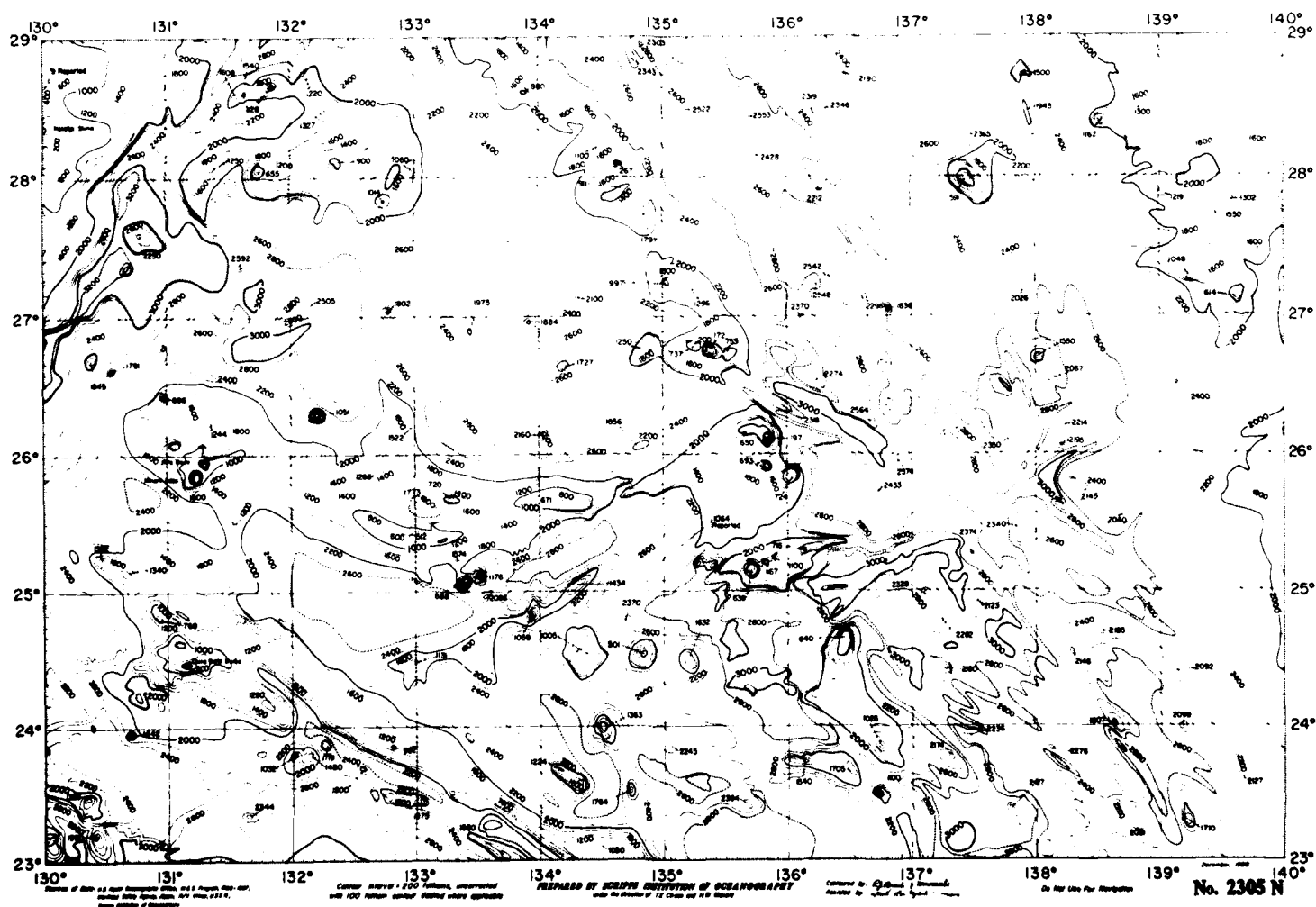


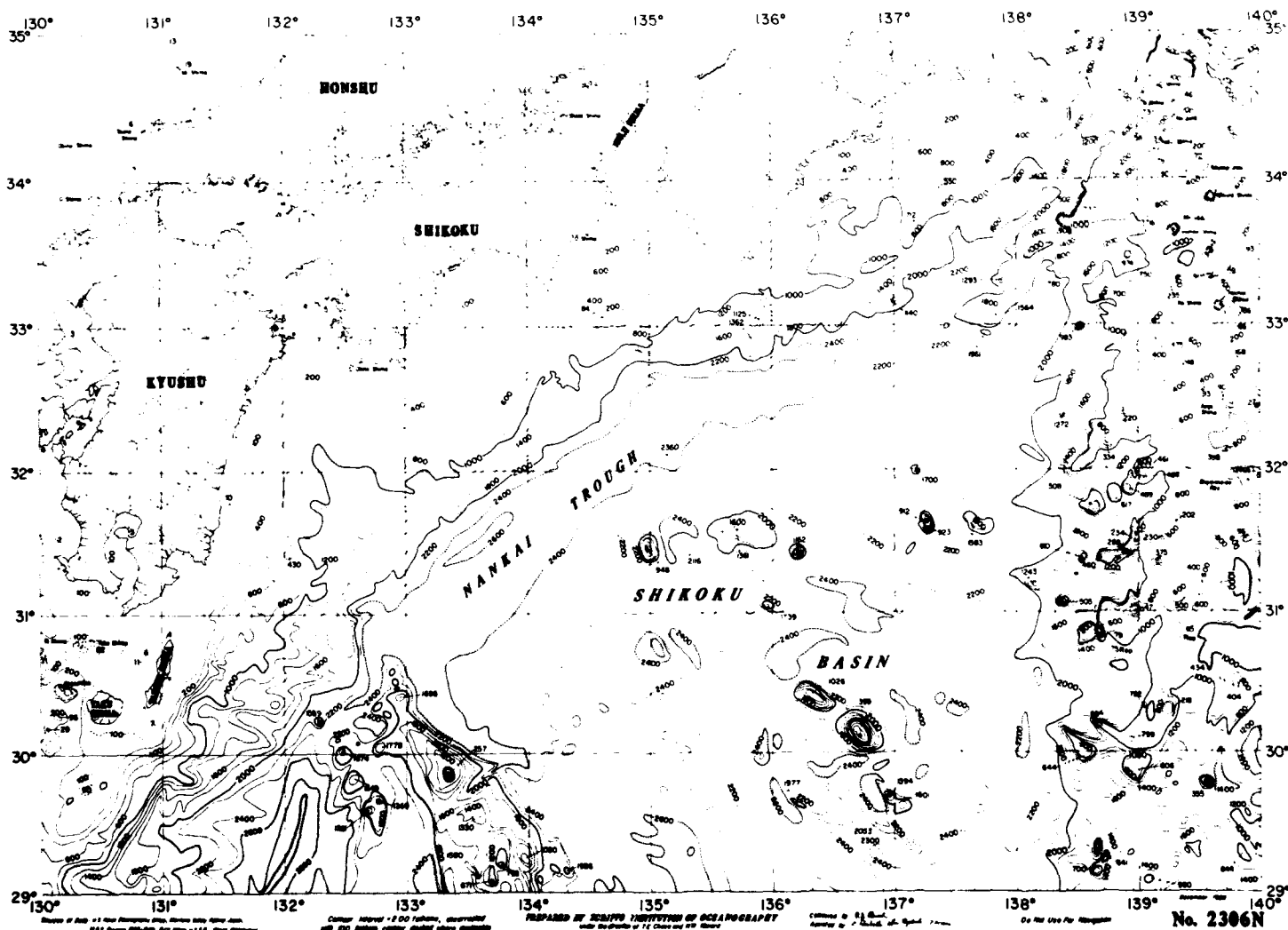


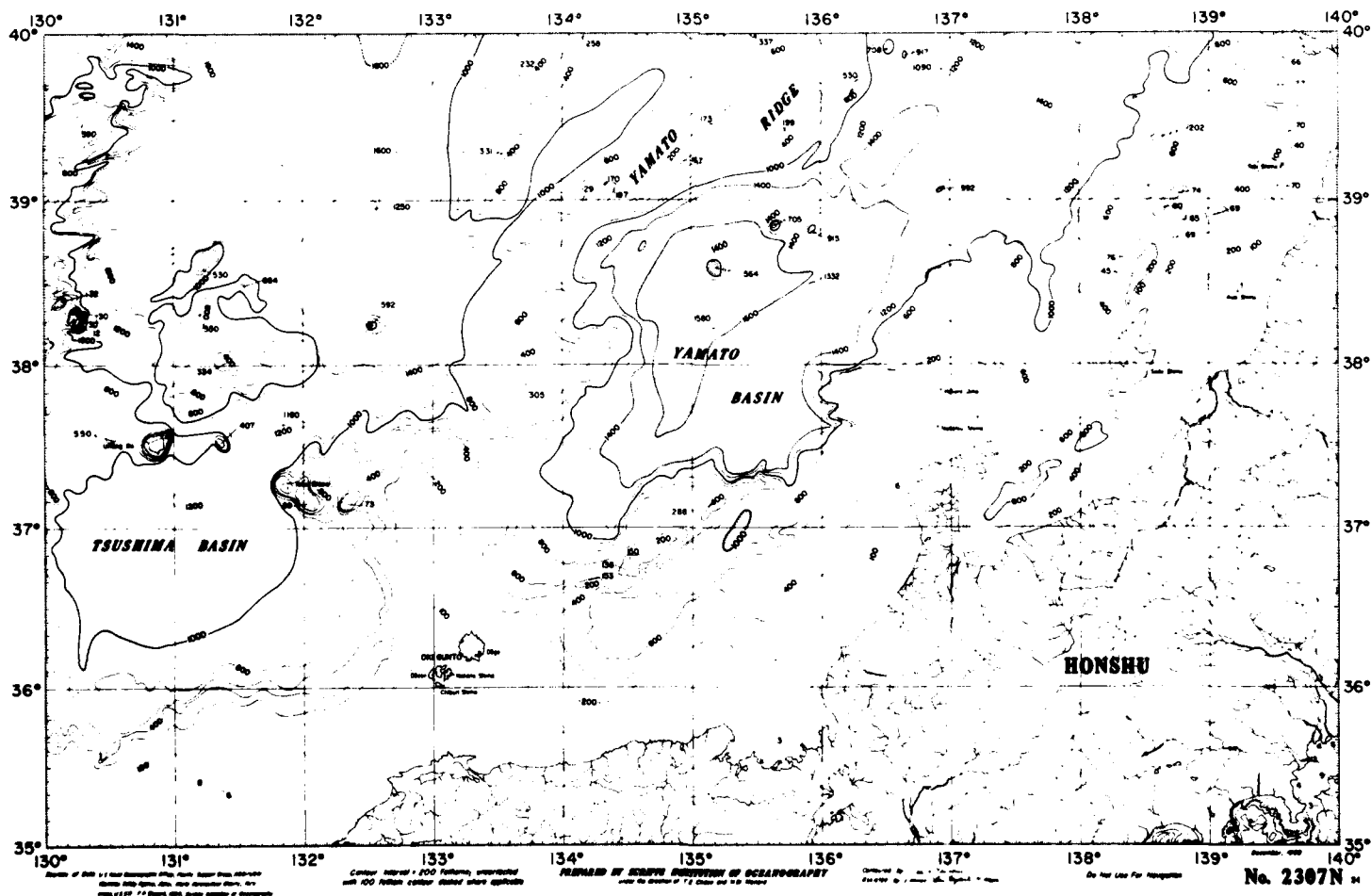












Scale of 1:100,000 (approximate). Contour interval 100 fathoms. Contours are shown at 100 fathom intervals except where indicated otherwise.

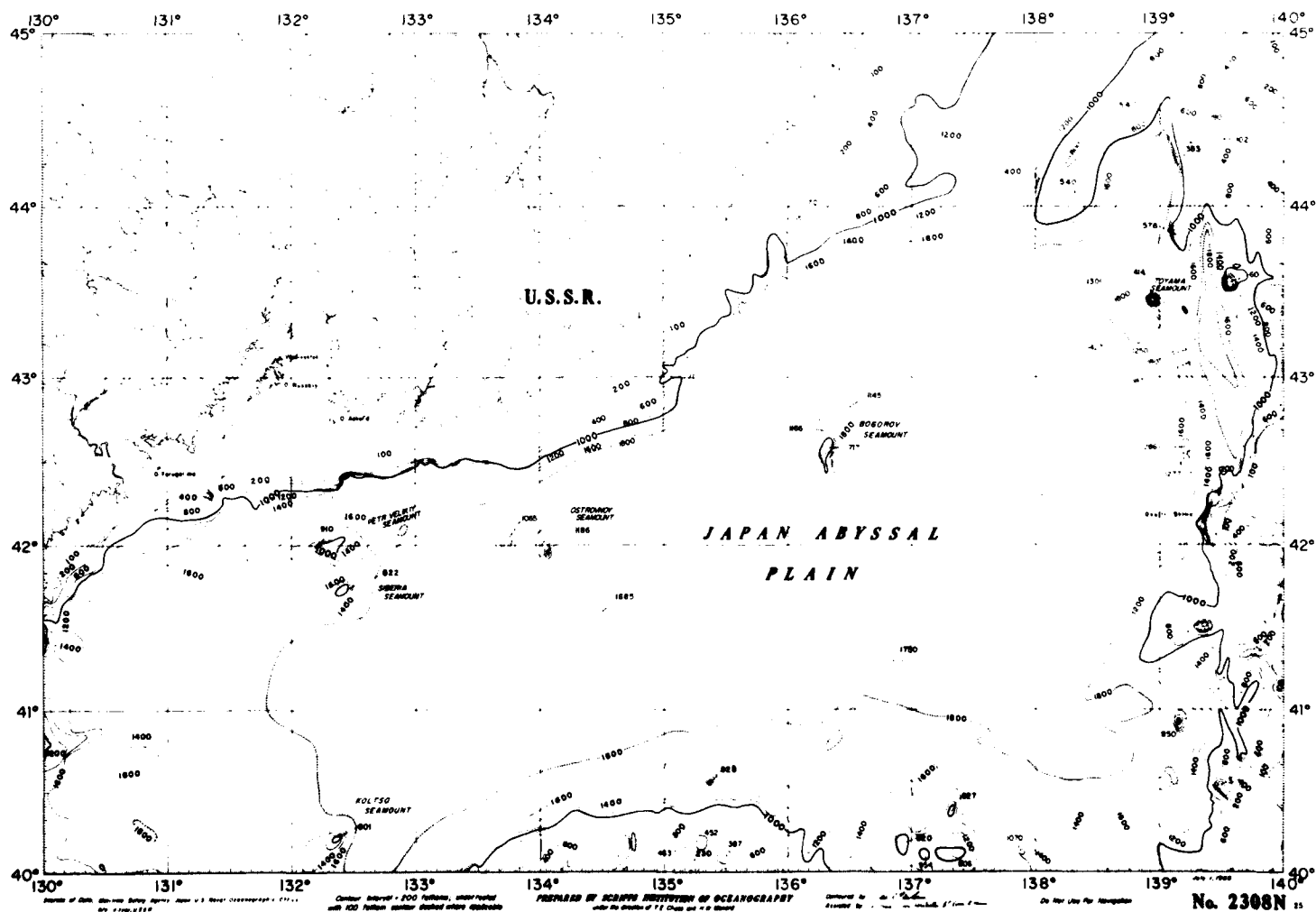
Contour interval 100 fathoms. Contours are shown at 100 fathom intervals except where indicated otherwise.

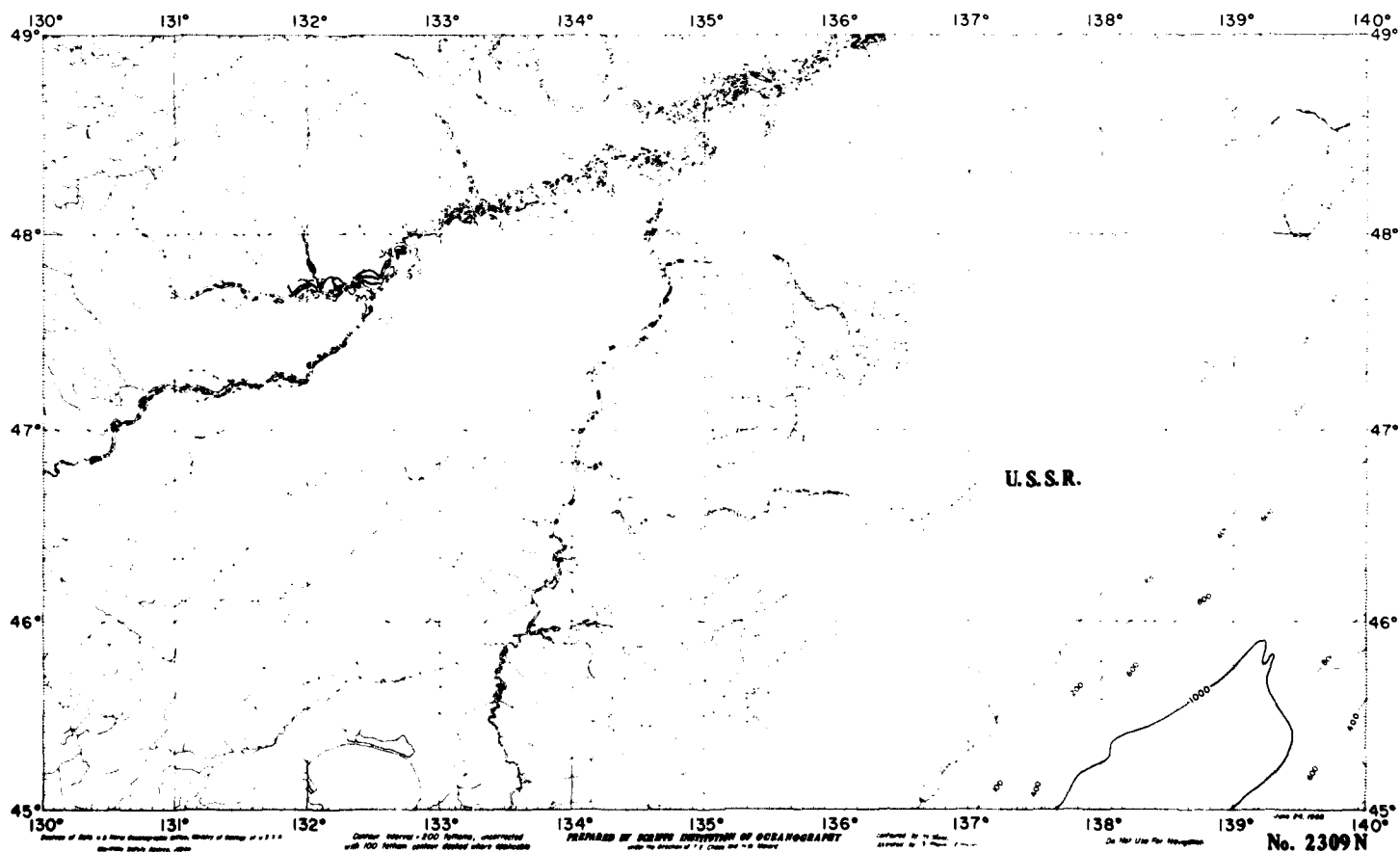
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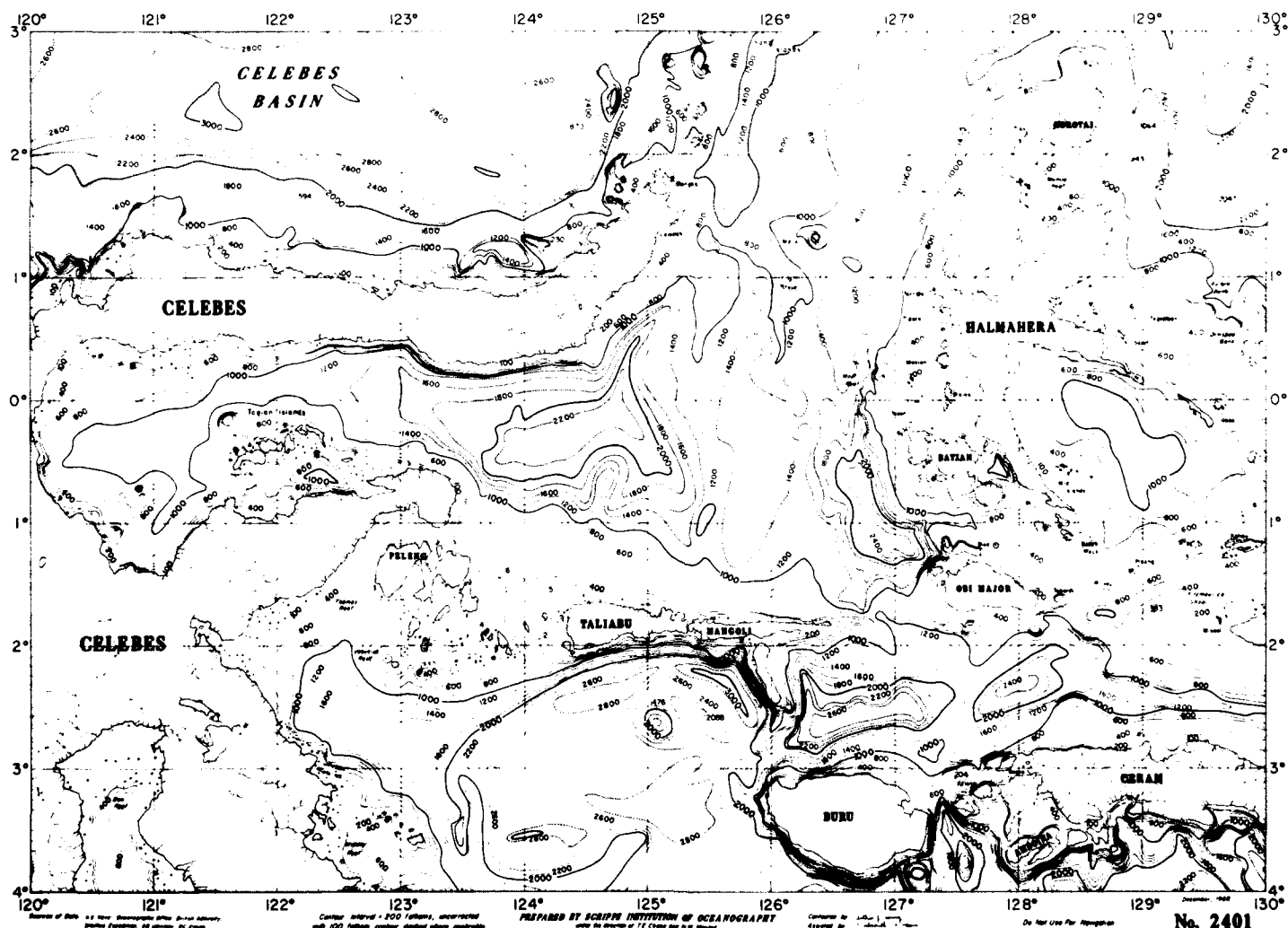
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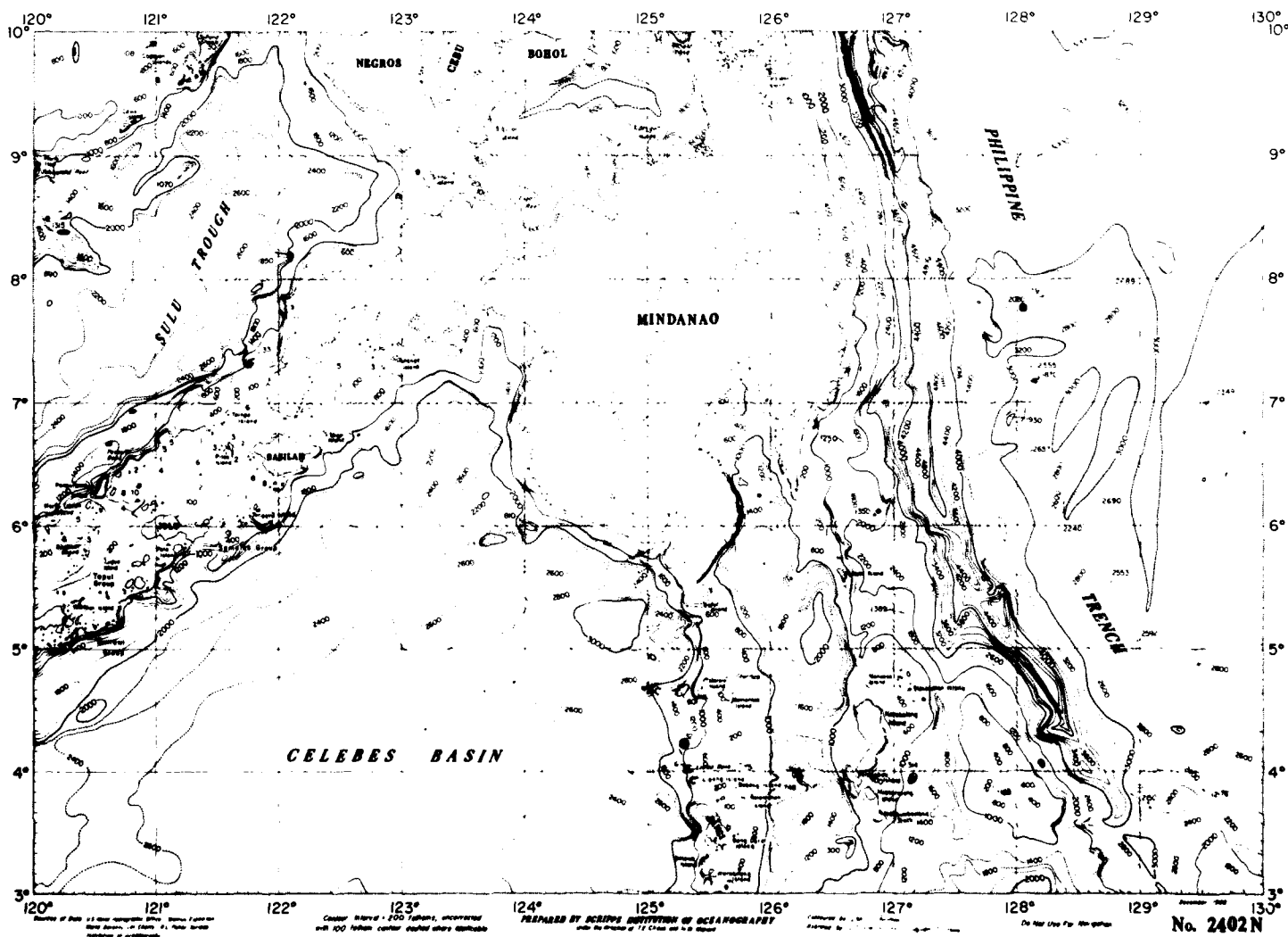
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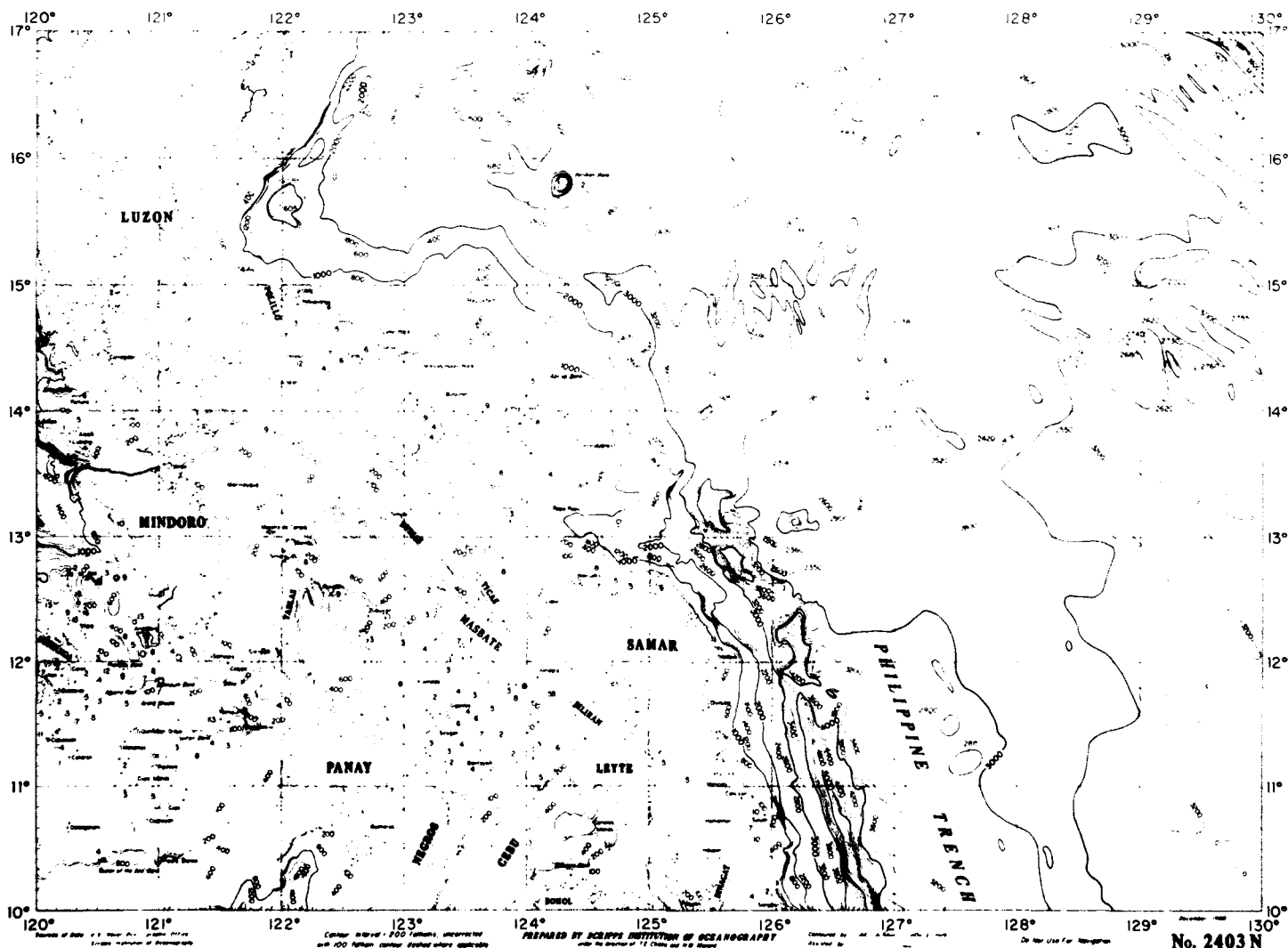
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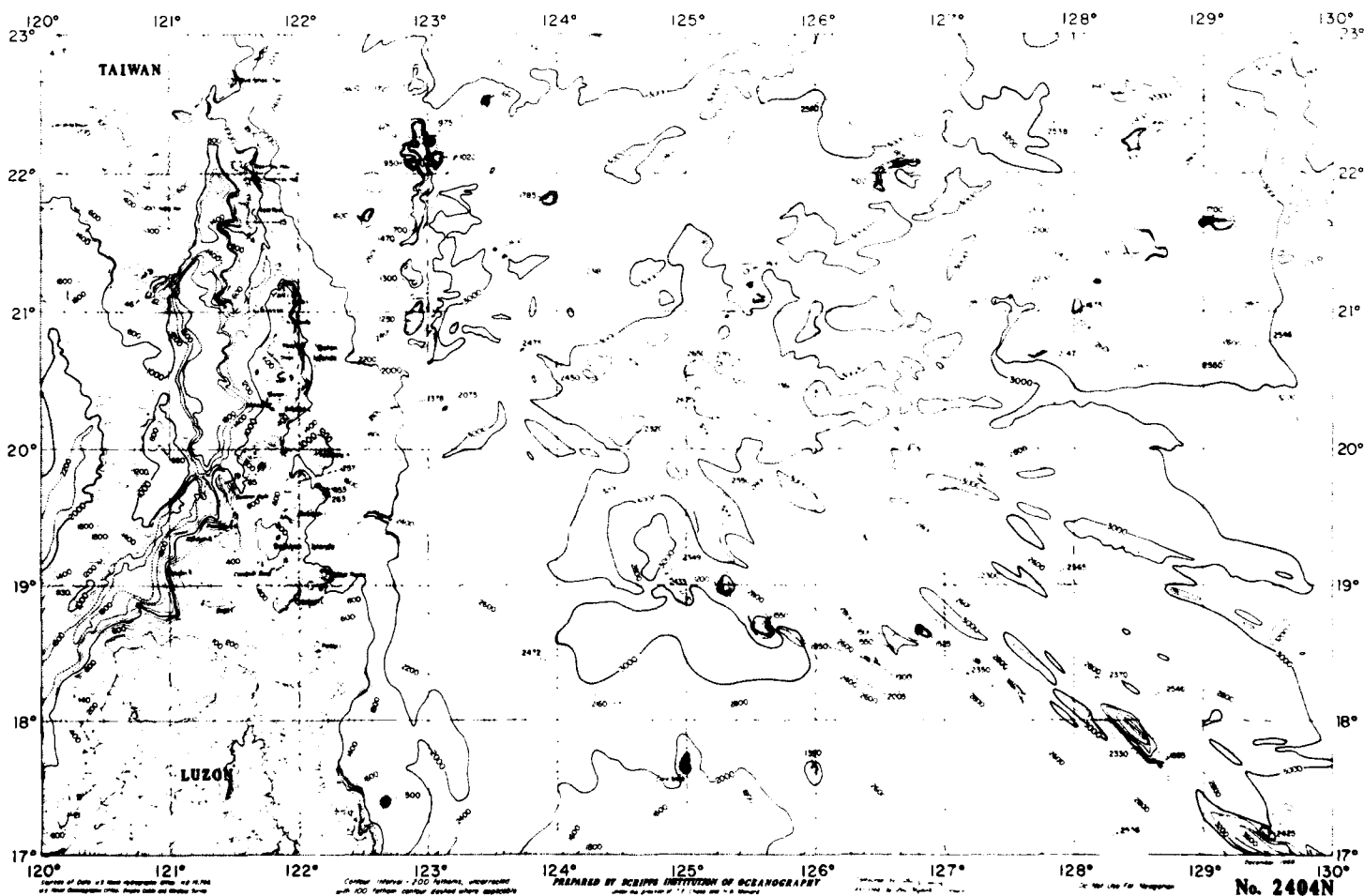


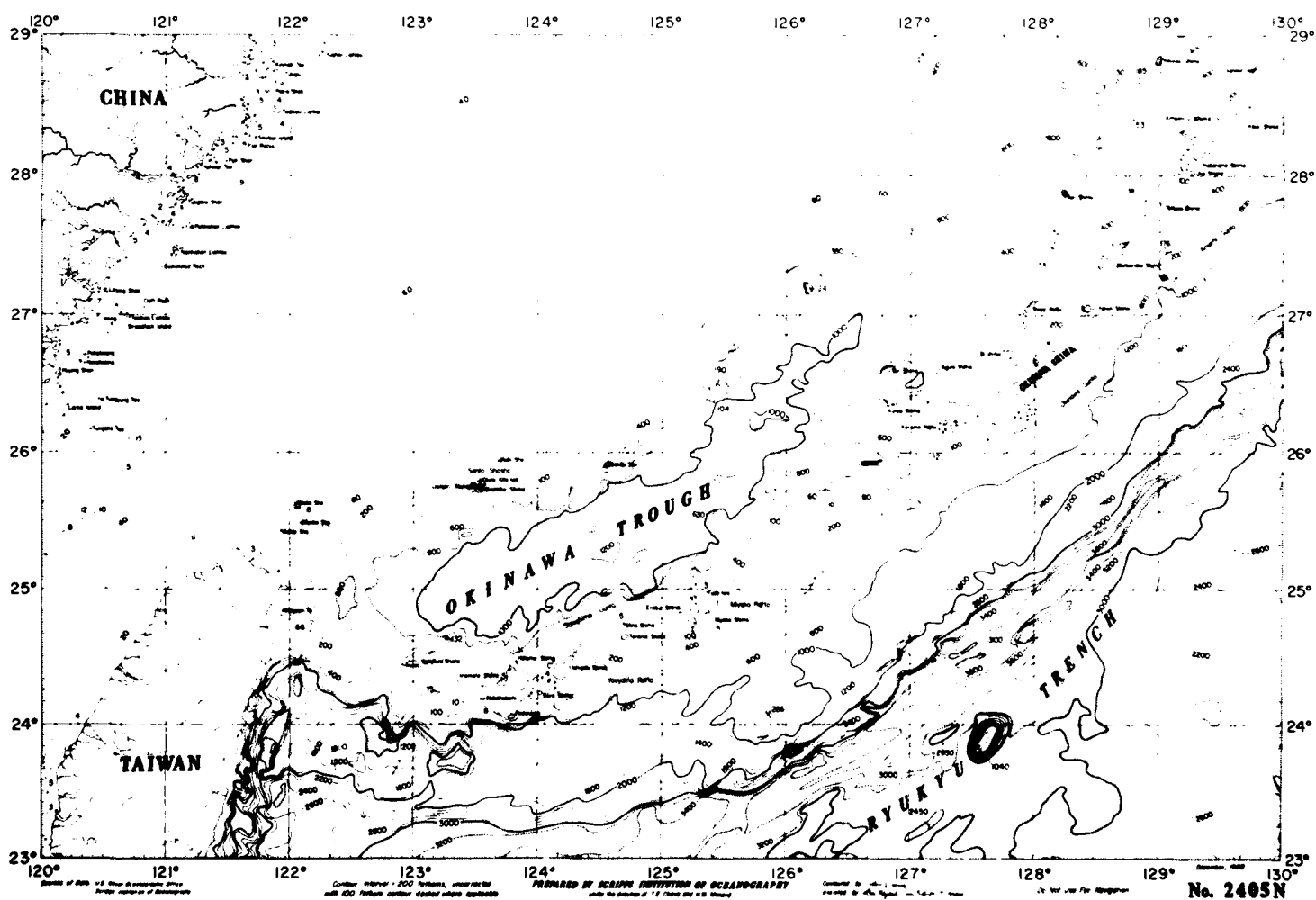


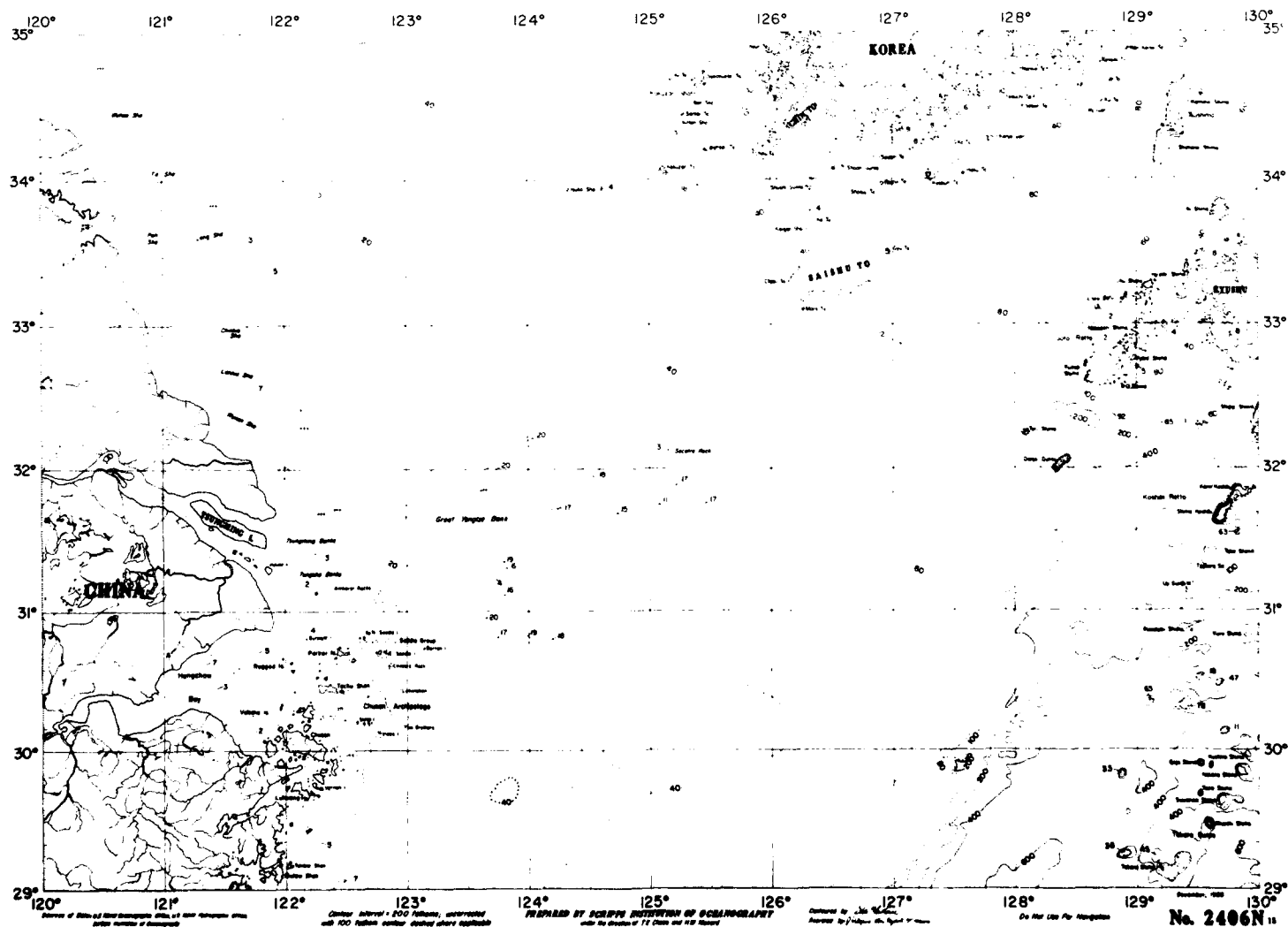


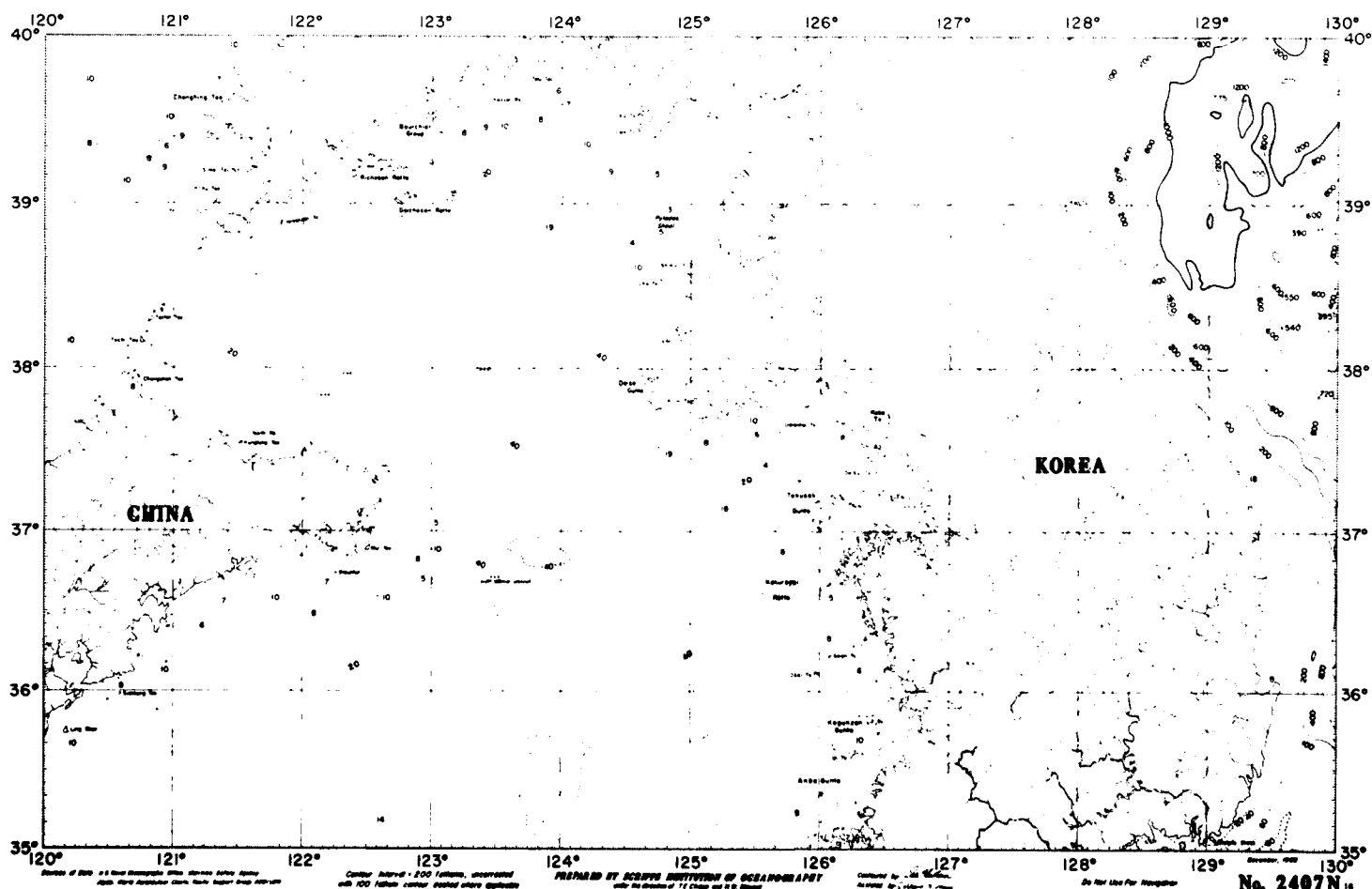


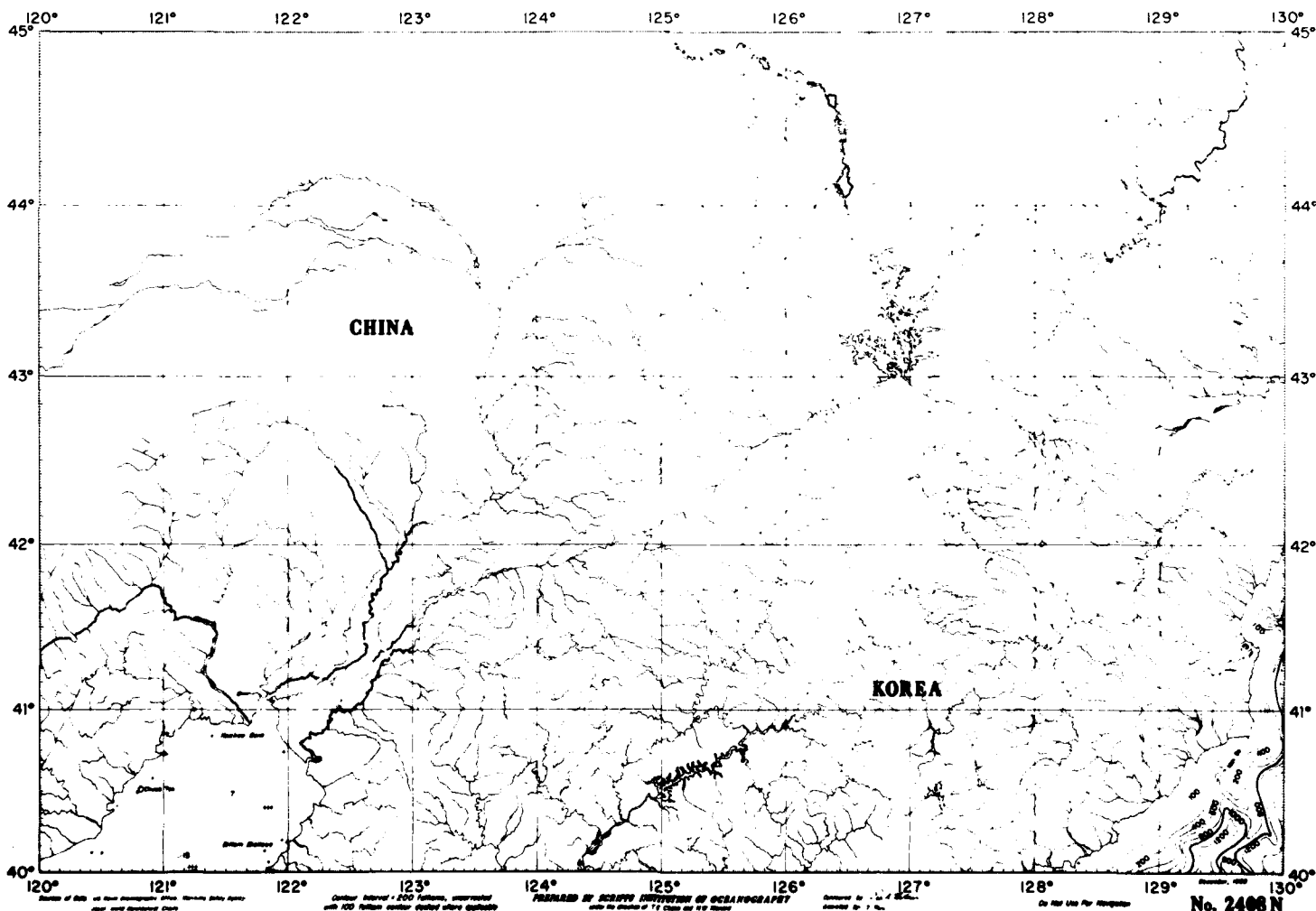


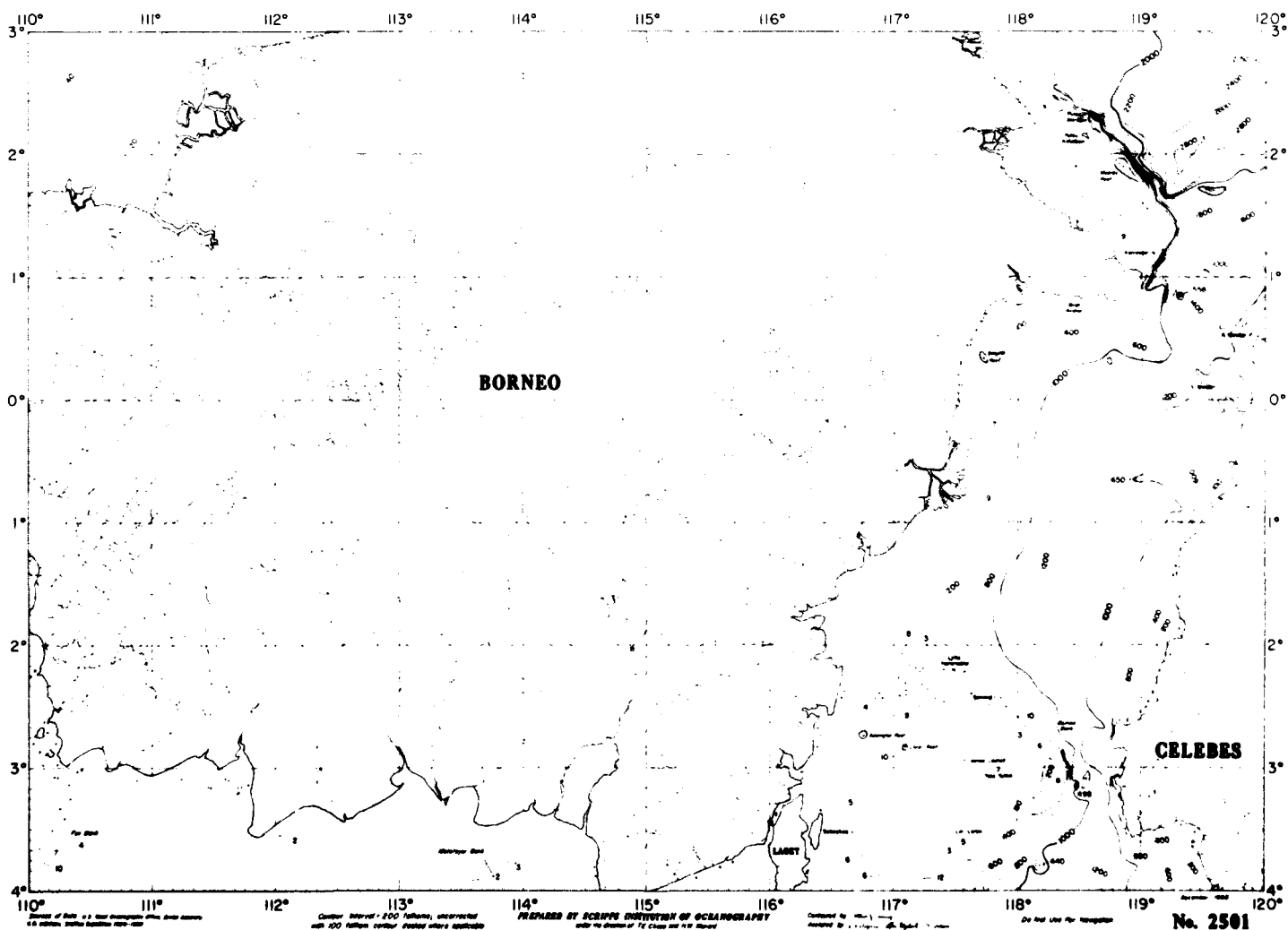


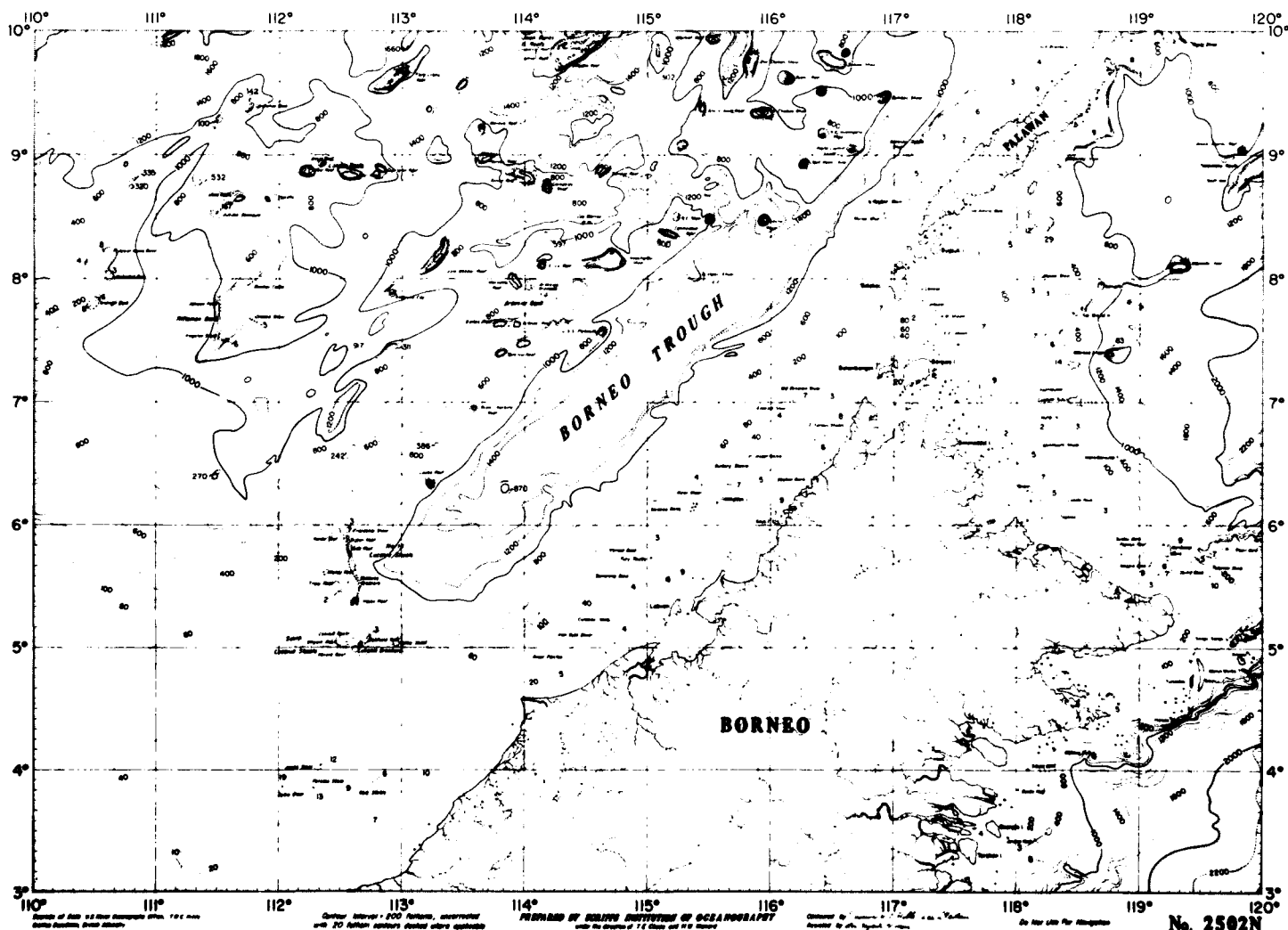


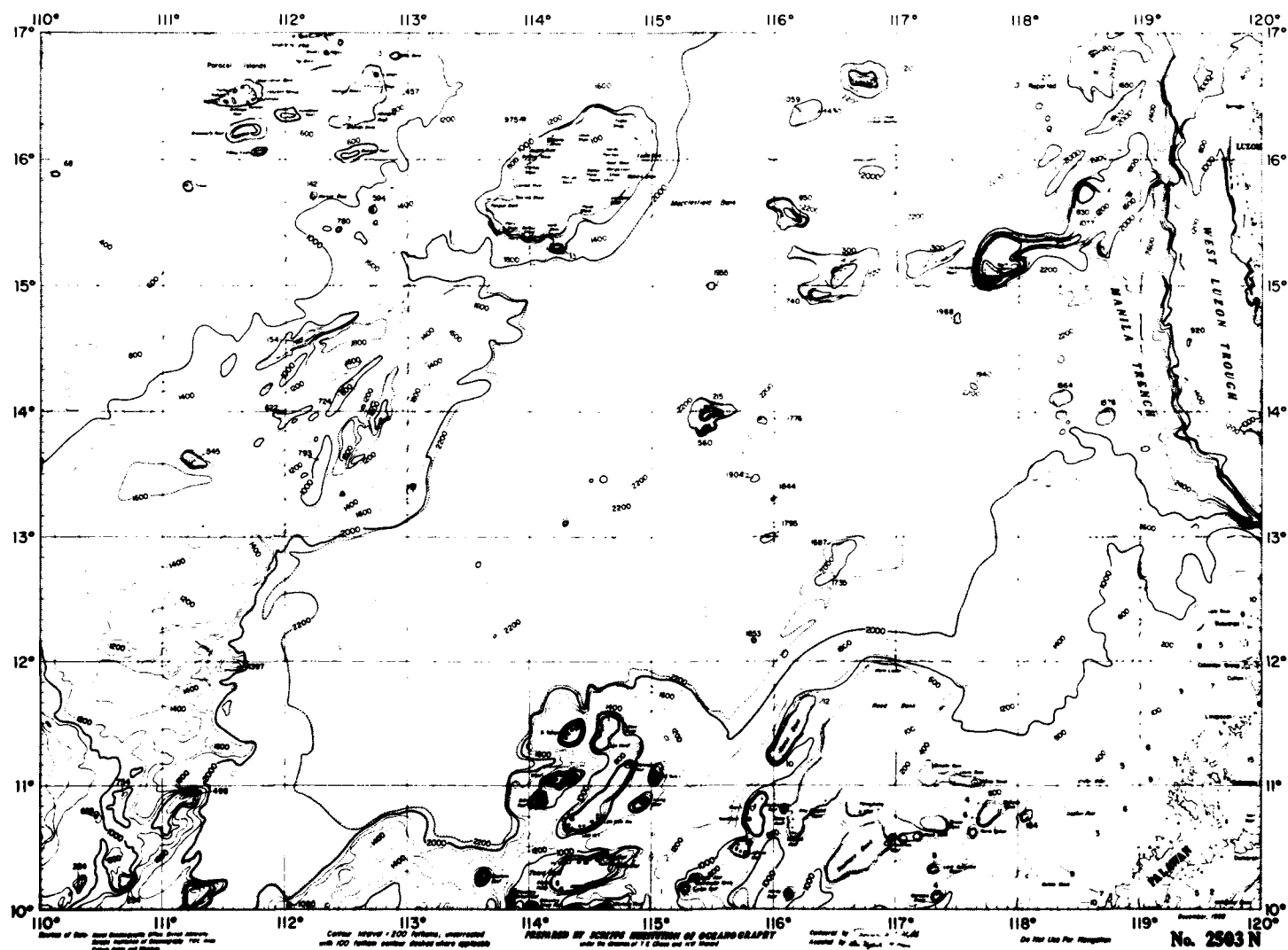


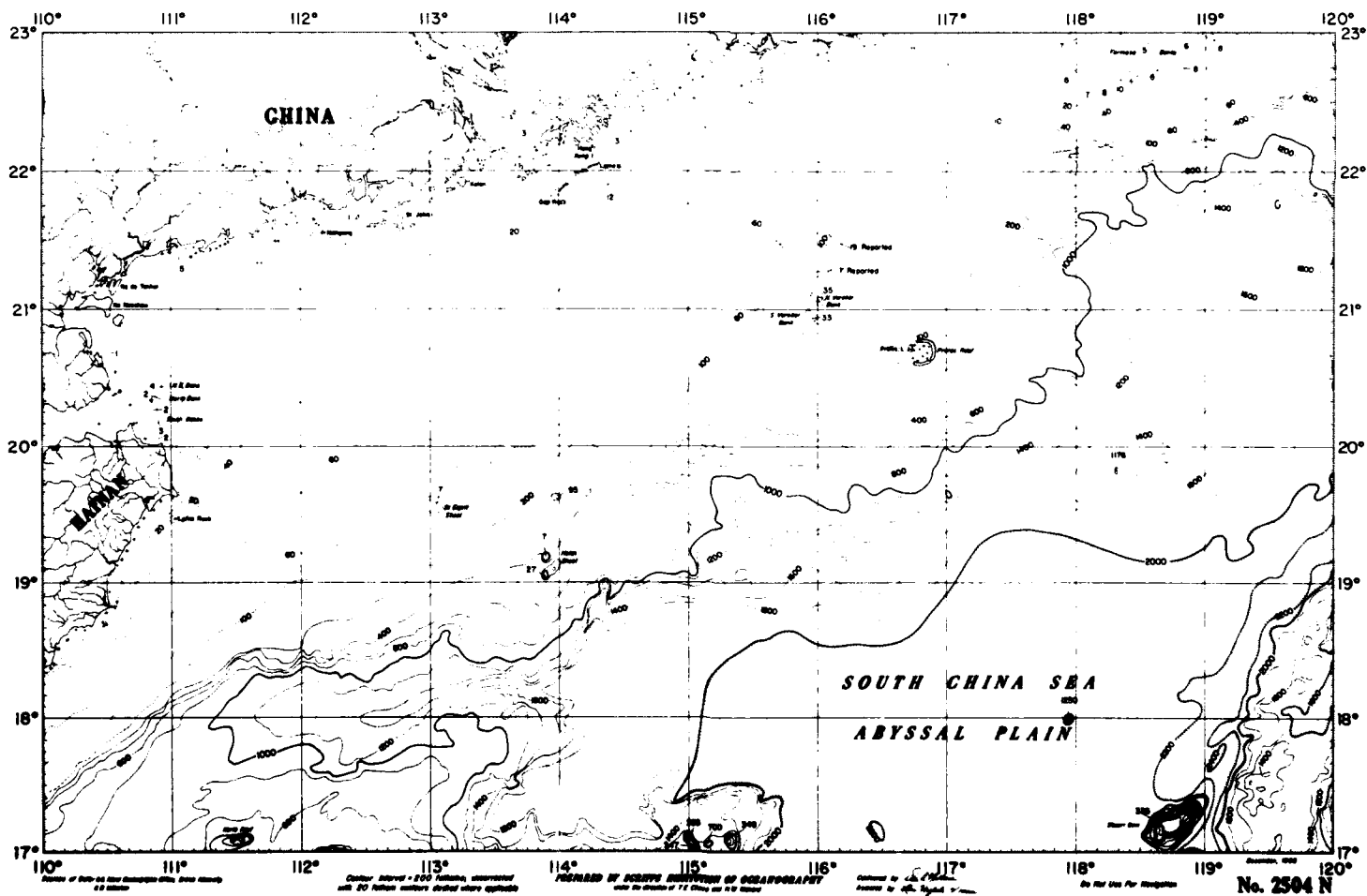


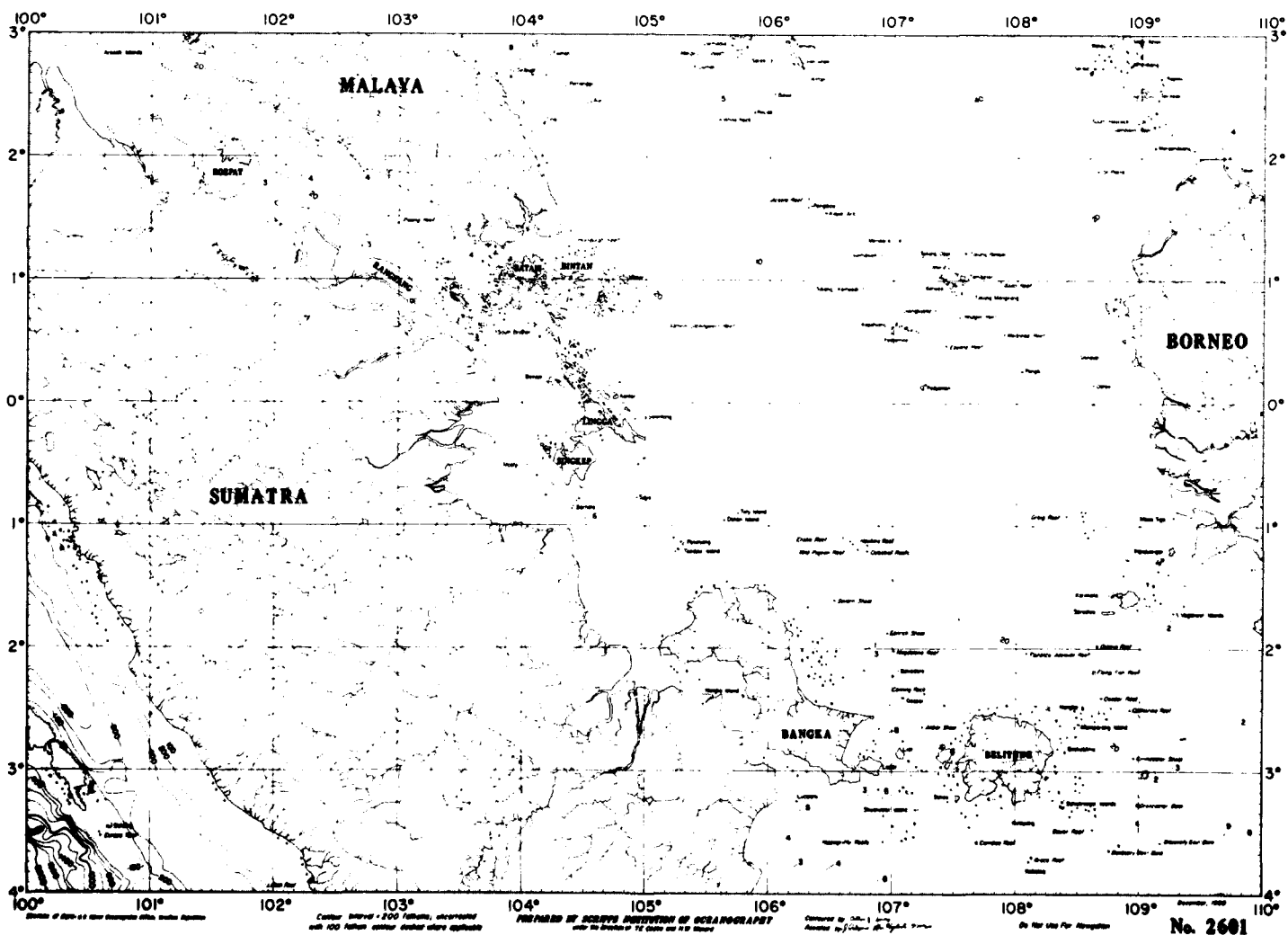


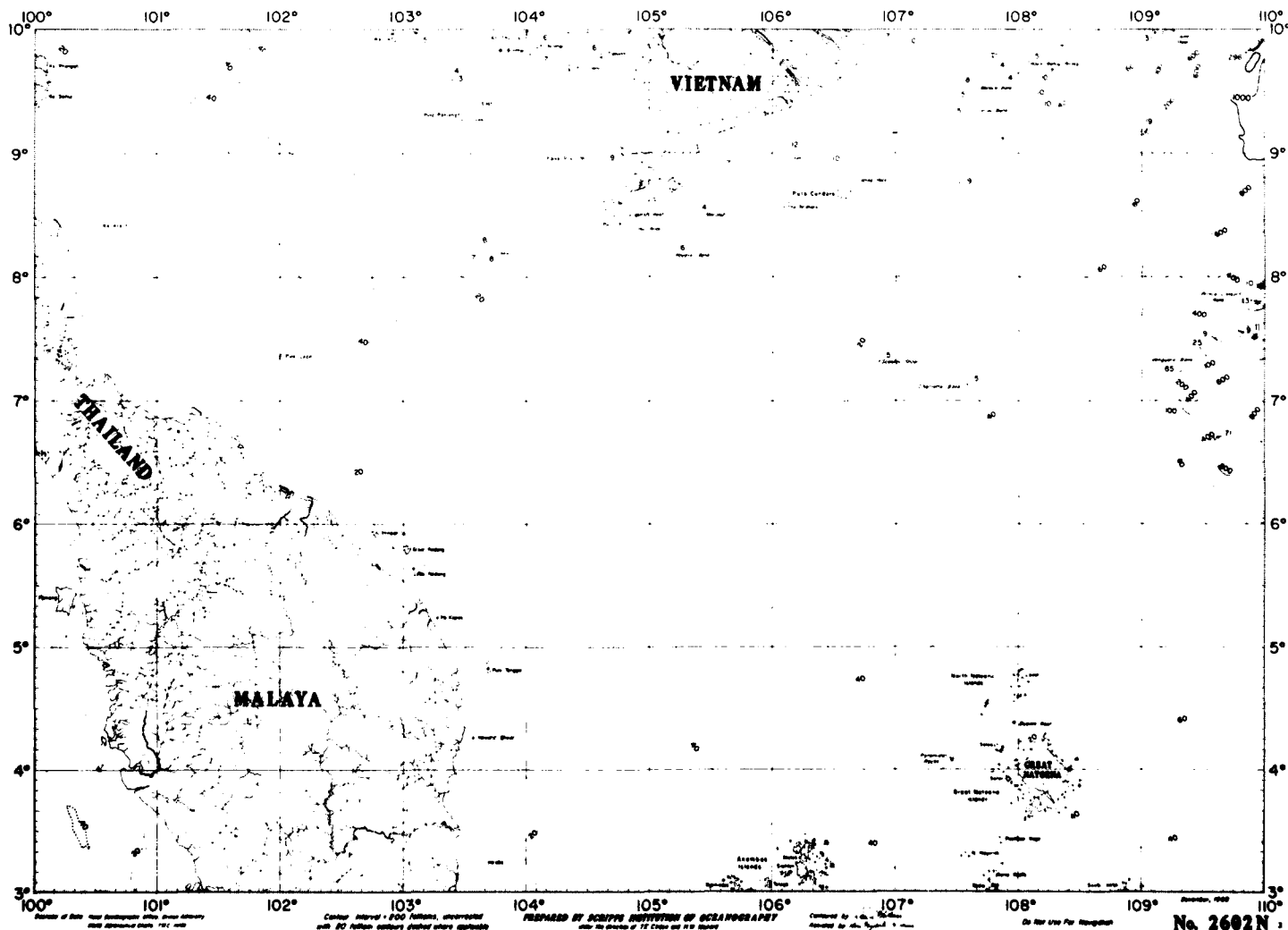


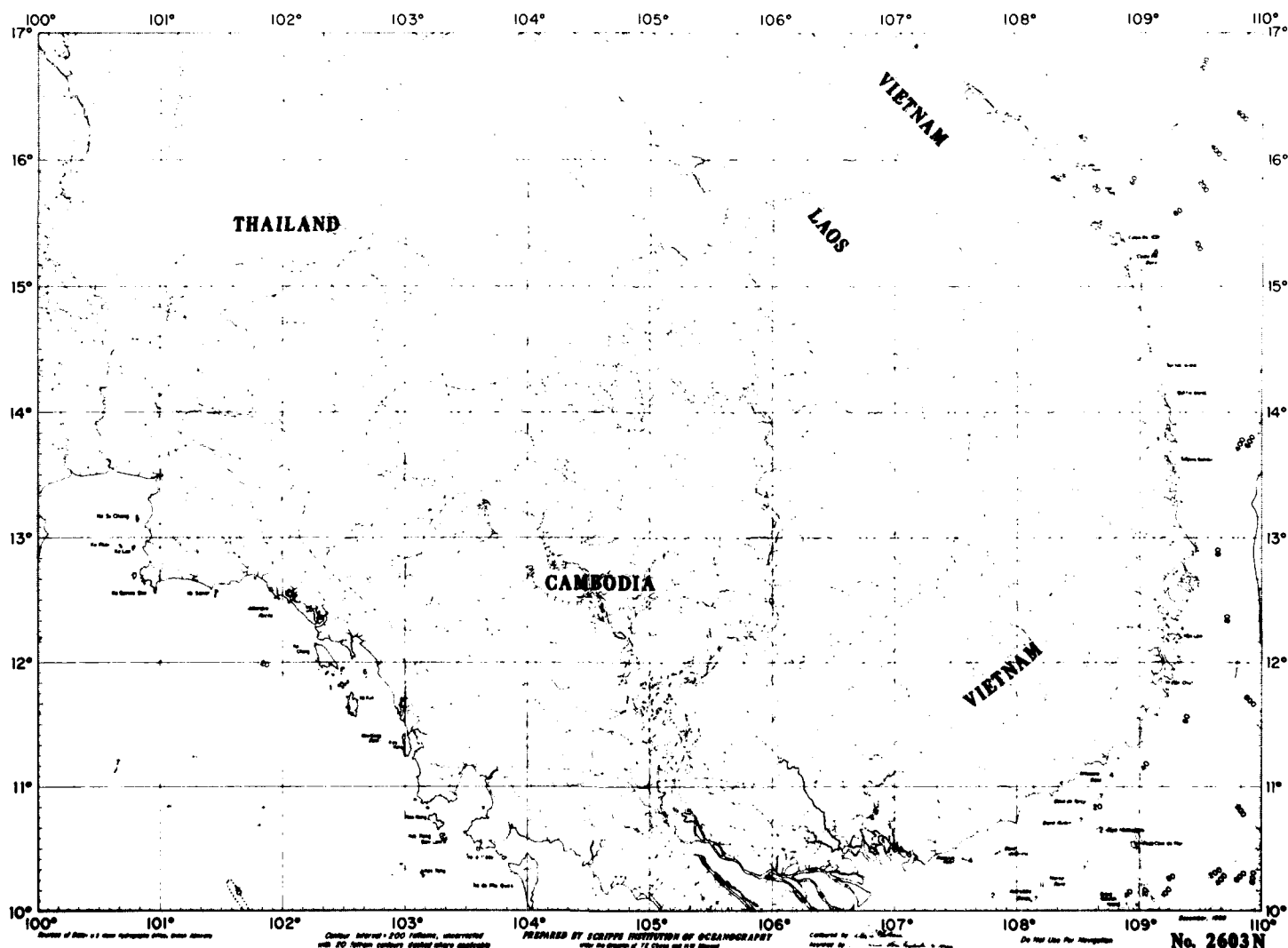












Source of Data: U.S. Navy Hydrographic Office, 1964 Edition

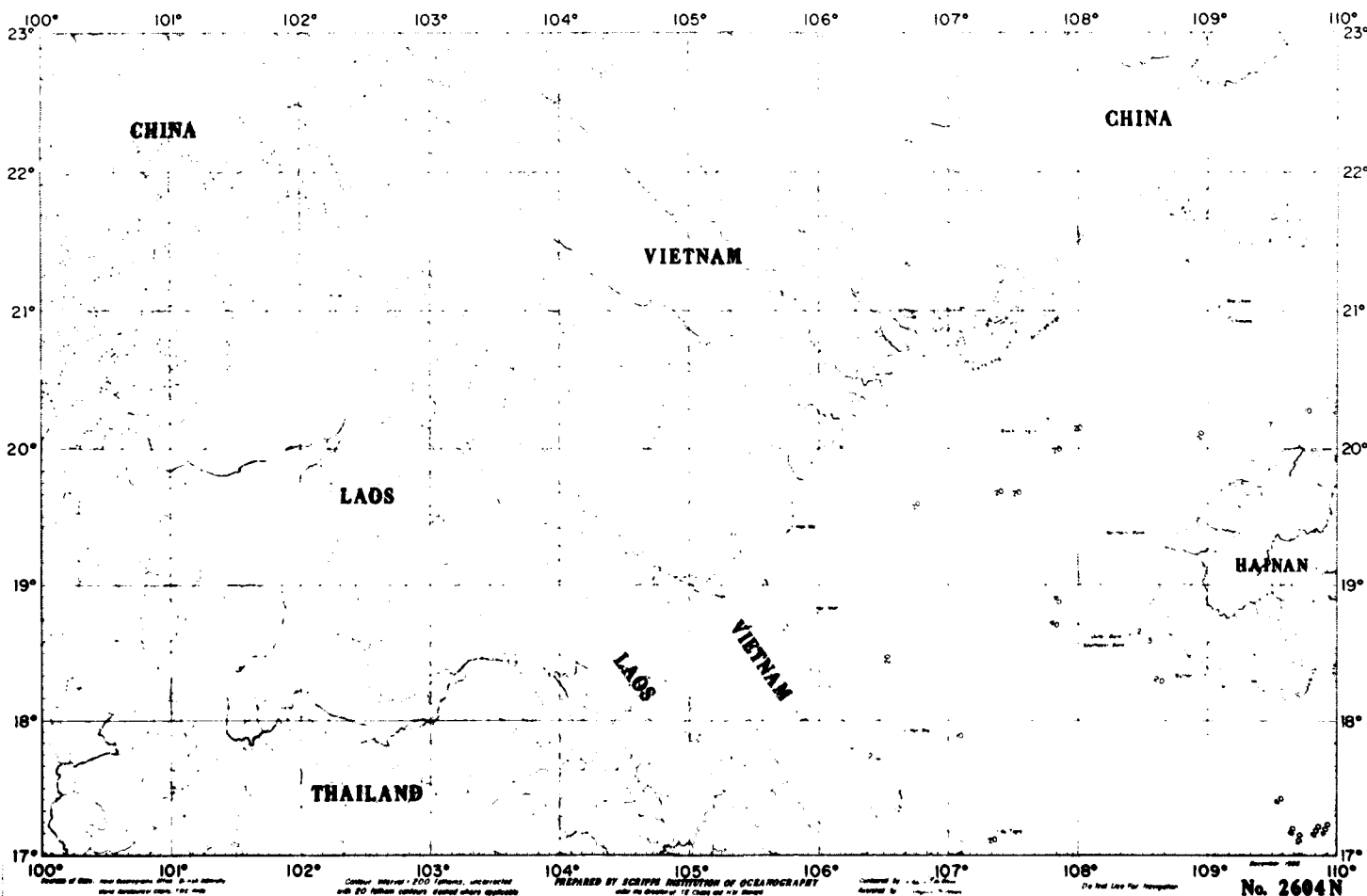
Outline: Interval 200 Fathoms, uncorrected  
with 50 Fathom contours dashed where applicable

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
North Pacific Ocean Bathymetric Charts Sea-floor relief		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
<p>This atlas contains 164 bathymetric charts covering the North Pacific Ocean between 4°S and 60°N and from 100°E eastward to the American continent. Sea-floor relief is shown by means of 200-fm contours based on an assumed mean sound velocity of 4800 ft/sec. Where sufficient data permit, the 100-fm contour and some contours at 20-fm intervals in shallow water are shown. Principal sounding lines used in compilation and analysis of the sea-floor relief are indicated by a subdued grey overprint on each chart. The scale (continued on reverse side)</p>		

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the charts is approximately 1:4,500,000. The charts and associated information combine and replace H.O. Pubs 1301-S, 1302-S, and 1303-S.

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